Audubon Magazine

JANUARY-FEBRUARY 1958

FIFTY CENTS

PUBLISHED BY THE NATIONAL AUDUBON SOCIETY

PATRICIA B. WITHERSPOON *has accompanied her father, Dr. A. M. Bailey, half way around the world — from Europe to Mexico — photographing gannet ledges of Bonaventure Island off the coast of Quebec, great flocks of blue geese on the Rainey Sanctuary in southern Louisiana, and the animals and plants of Colorado, Arizona and New Mexico. During a recent expedition to the South Pacific Islands, she studied, among many interesting subjects, the unique animal life of Koalas and the strange egg laying platypus and echidna. This material is presented by Mrs. Witherspoon on the Audubon Screen Tour Lectures.*

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Patricia B. Witherspoon

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Audubon magazine

Volume 60, Number 1, Formerly BIRD-LORE

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A bimonthly devoted to the conservation of wildlife, plants, soil, and water

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Cover: View of woodland stream in midwinter photographed by Jack Dermid.

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Letters

The Importance of Predators

"Wolf"—the article by Olaus J. Murie, which appeared in the September-October 1957 issue, is splendid. It is long overdue. The scientific facts which he quotes, are only too true. The way some sportsmen and game management people carry on with their predator-control campaigns, would be the same as though a rancher slaughtered his best bulls each season, and depended on the culls to keep up his herd.

The wolf and other predators eliminate the sick and the weaklings and so create better game herds. As to the caribou, it is not the wolf but *man and his fires* that are killing them off. I have known the country north of Lake Superior since the turn of the century. There were then quite a few scattered bands of caribou with a few on Isle Royal but fire has since destroyed the principal food-lichens—these grow slowly and it takes years to bring the lichens back after their destruction by fire. There are still a few caribou on some of the islands on the north shore of Lake Superior—on privately-owned islands that are well protected.

We have distributed 10,000 of the National Audubon Society's hawk leaflets through Louisiana. They have done some good work. The post, or pole, traps have practically disappeared from Louisiana.

DR. H. B. WRIGHT, Director
Louisiana State Exhibit Museum
Shreveport, Louisiana

Another "High and Dry" Dipper's Nest

I was quite interested in the account of Mrs. Washburn's unsuccessful search for a dipper's nest in the Big Sur region of California, (*"Hunt for an Ouzel's Nest," Audubon Magazine,* July-August 1957). While working as a naturalist at Big Sur State Park during the summer of 1953 I discovered one of these nests. Like the nest that Mrs. Washburn eventually found, this one was *not* behind the traditional waterfall. It was, instead, high and dry on the underneath side of a concrete state highway bridge! I was unable to see the young in the nest, but the chatter plus the frequent visits of the adults left no doubt that a family was present.

THOMAS G. OVERMIRE
Indianapolis, Indiana

When the Desert Blooms

I thought the readers of *Audubon Magazine* might be interested in hearing of an unusual autumn we had here in the desert in 1957. For the past several years we have not had very much moisture at those seasons when it would do the most good. As a consequence our plant life has suffered, and has become drier and browner. Even the various cactuses have shriveled and the poorer plants have died. Only the greasewood and catclaw have managed to stay green. The past several springs, instead of having our beautiful wildflower display, we have had only scattered specimens. Just a few poppies, a sundrop or two along the roadside, a hardy bloom on the desert mallow, and, at the higher elevations, a few scattered woolly marigolds.

And, of course, with the shortage of plant life, animal life on the desert diminishes in proportion. The shortage of insects was reflected in the scarcity of lizards, and where we would generally see dozens in the washes, we were fortunate to see one. One old collared lizard that we have kept track of for three years looked so poor that we despaired of his survival so we caught him and carried him to a moister location where there was a more varied diet. The chuckwallas looked so wrinkled and

Turn to next page

loose-skinned they wouldn't have made a mouthful for a hungry road-runner, or ring-tailed cat. The employees at Boulder Dam were putting out hay for the bighorns and these usually timid animals were coming down to eat and drink within 50 feet of the warehouse where men were working. Truly our local bit of the desert was a barren and dry place. All the plants and animals were suffering from the prolonged dry spell.

Then, in late August, we had a storm that was a "gully whomper," and we had more rain in one day than we generally get in a year. Better yet, it continued to rain off and on for several days, so that all of it didn't go roaring down the old washes, or spill over and make new ones. A wonderful, drought-breaking, life-bringing rainstorm, and the whole countryside just gurgled and drank, and splashed, and soaked it up. Have you ever smelled the desert after a summer rain? I won't try to describe it because you wouldn't believe me.

The days and nights stayed hot, and evidently our old desert thought it was spring, for it took on a coat of green generally reserved for spring display. In just a few short weeks, plants that we hadn't seen for years had sprung up everywhere and many of them were blooming. The floor was so covered with tiny plants of all kinds that you couldn't walk about without stepping on them. Never before had I seen the desert put on such a show at this time of year. The migrating warbiers, flycatchers, and swallows seemed to be lingering to take advantage of the bounty.

The desert is always different and is always fascinating but this was a new side of its character and we enjoyed it to the utmost.

WALTER BROMLEY
Boulder City, Nevada

A Descendant of John K. Townsend

In the March-April 1957 issue of *Audubon Magazine*, I read an article about John Kirk Townsend which interested me tremendously. He was a brother of my mother's grandfather, Edward Townsend, with whom she lived. We have grown up with "Townsend's Narrative" and tales about him and a feeling that "Uncle John" was a real person. We had no photograph nor daguerrotype of him—so are most pleased to see the one of him in *Audubon Magazine*.

MRS. CLIFFORD H. VERNON
Los Angeles 4, California

Chickadee Sleeping Habits

We have a feeder on the back porch for the birds, and we are especially fond of chickadees. We have the feeder in use all year round because there are always visitors coming for peanut butter, including a family of nuthatches. We are now using the large economy jar.

A chickadee has been spending the night for a month roosting in a round opening that forms part of the trim under the back porch roof. Its arrival and departure have been checked daily. It is resting and sleeping about 13 hours —coming to roost around six at night and leaving about quarter of seven in the morning. This seemed most interesting because these birds are so lively and never stay still for long. Another observation — perhaps the chickadee would be an earlier riser if breakfast were not so handy!

MISS H. L. LINDBLAD
Peekskill, New York

Long-Time Subscriber

I have been a subscriber to *Audubon Magazine* for over 50 consecutive years.

ARTHUR B. SPERRY
Manhattan, Kansas

Another Friend Writes

As a member of the National Audubon Society, I find *Audubon Magazine* very, very interesting. The articles in it are the best that I've read.

JERRY S. SCHONE
Tomah, Wisconsin

Keeping Ants out of Hummingbird Feeders

To keep ants from getting into your hummingbird feeding bottles, hang them on a thorny plant, such as a rose-bush (or a barbed wire fence). It works!

BEATRICE M. WHEELOCK
LaJolla, California

Wants to Exchange Letters About Birds

I would like to correspond with anyone anywhere in the world, male or female, 8-88, as long as they are interested in birds. I would answer every letter. I hope you can print this letter in *Audubon Magazine*.

PATRICIA BUNCE
Frost Road
Rhinebeck, N. Y.

Pileated Woodpeckers At a Suet Feeder

About two years ago we saw a pileated woodpecker about a hundred feet from our house, apparently feeding on the ground. We didn't see it again until this April 1957 when it started to work on the suet in our container on a tree 30 feet from our kitchen window. (We have maintained the feeder for the past five years.) At first the pileated woodpecker was quite shy and would fly away at the slightest movement or sound from those of us in the house. As time went

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This is the scene as normal 50 mm. lens saw it. Details of house on this scale were beyond grasp of lens. Questar on tripod took close-up view at right with similar 35 mm. single-lens reflex camera.

Questar's 21-times-longer focal length made this building 21 times larger on the negative. This print has been enlarged to a 46 diameter magnification. Note crisp detail and indoor electric lights.

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Below at left is shown our masterpiece — the fully-mounted De Luxe Questar. The entire shape of this instrument has been dictated by one consideration — your comfort when you use it. The whole idea is to give you the means for most easily controlling the great power at your command. It is fully assembled, always ready. The base is flat, so it works from any fairly level surface; it has a built-in wide-field finder; the whole barrel rotates, eyepiece and all, to keep you from having ever to crane your neck unnecessarily. You point at things by turning two smooth-feeling control knobs, and change your powers from 4 to 40 to 80, or from 8 to 80 to 160, depending on which eyepiece you use, with fingerflicks, without having to move your eye from the ocular at all.

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Shown below at right, the Field Model has no machinery at all, or any built-in finder or optical power-change devices. It comes complete with case, 40x eyepiece and choice of star diagonal or erecting prism at $495. Its simple bracket casting attaches to the pan head of any tripod. Other accessories are available, and we have couplings for all suitable cameras.

Literature and details of time payment plan on request.

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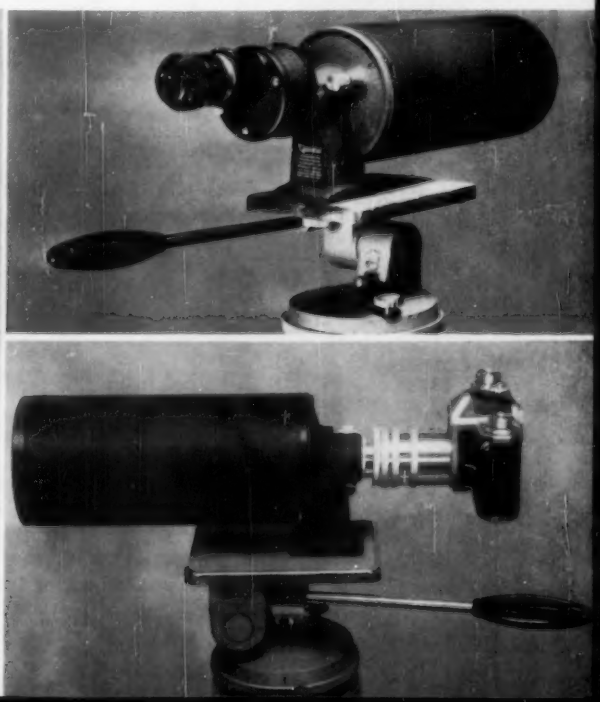

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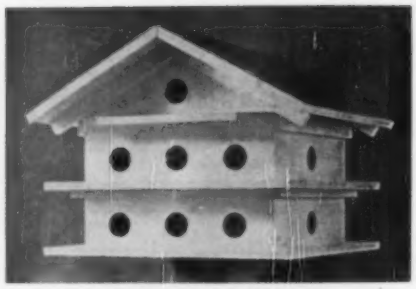

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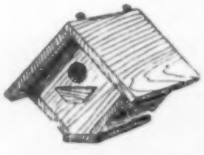

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on it became so tame that we could make considerable noise without frightening it away—even to having supper out-of-doors about 50 feet from where the bird came to feed.

Sometime in May, it brought another for company. The second bird was much more shy and spent much of its time on the far side of the tree occasionally reaching around for a bite. I also noticed that one of the woodpeckers seemed to be right-handed, the other left-handed; that is, one always approached the suet basket from the right and the other from the left—even if each were feeding alone. Their feeding times were quite regular—about six in the morning and seven in the evening. Early in July they brought what I assume were their two offspring. We have seen four of them at a time but only once when they were together did I have my camera handy. I did get a photo of three but I got buck-fever when it came to four, and spoiled the picture!

Not long after the youngsters appeared, the woodpeckers changed their feeding hours, apparently because the feeding area at the suet container was too small. Two would come later in the morning, say at eight o'clock, and again at four in the afternoon. On October 11 and 12, they advanced their hours so that they almost came at lunchtime. The last feeding occurred at 11:15 a.m. It is, of course, entirely possible they didn't know Daylight Saving Time was still in effect!

I was in Europe during August and September. While I was away, my son kept the suet basket filled, making the hundred mile trip for that purpose so that we wouldn't lose these entertaining friends.

Do you know if anyone has recorded such a thing heretofore?

JOHN ALEXANDER HARDY
Salisbury, Connecticut

Comment

We have had specific reports of pileated woodpeckers, attracted to suet feeders, in upstate New York, West Virginia, and New Jersey. Near Thomasville, Georgia, Herbert L. Stoddard and Ed Komarek, well-known biologists, have had pileated woodpeckers coming to their suet-feeders for many years. It seems to be an increasingly frequent habit as the pileated woodpecker continues to show a remarkable adjustment to people and to living near built-up areas. The pileated woodpecker was known, 40 or 50 years ago, as a shy bird of deep woodlands. Protection for it seems to have overcome some of its shyness and its aversion to mankind.
—The Editor

Wildlife Near New York City

On September 6, about 6:30 p.m., I saw as I drove along the Saw Mill River Parkway just north of New York City, a flock of wild Canada geese feeding, with one standing by as a sentinel. They were on the short-cut grass of the edge of the parkway. Also, I have often seen woodchucks in the last year or so eating along the parkway, and once I saw a deer.

One day, in the summer of 1956, I pulled over on the grass on the same parkway to help a man get a beer can off of the head of a young woodchuck.

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The poor creature was walking round and round on the roadway with the can jammed on its head. No one would risk running over it, and so the cars all stopped. The traffic tie-up was something until we got the animal free, and he scuttled off, I hope, a wiser 'chuck.

JANET C. LIVINGSTON
New York City, New York

Raising A Young Oriole

Each spring we have an oriole family in the maple tree in our front yard. On June 13, 1957, we had a bad storm which seemed to wash out the bottom of the nest and two very young birds fell at least 30 feet to the ground—on the hard street below. One died but, by some miracle, the other began to thrive on my special diet of small pellets of raw hamburg, egg yolk, pablum, and milk. I fed the young bird regularly every half-hour during the day. It was a revelation to see that ugly little glob of fuzz and skin develop into a beautiful bird. We were as proud of its first flight and first chirping as any mother oriole could be.

After our youngster began to fly we let him (or her) have his freedom. He would fly down to us, sit on our hands, shoulders, or head. We were very pleased to see him learn to catch insects, including ants. He was very fond of apples and oranges, also.

For a couple of weeks he would be out on his own all day but at night we would bring him in the house where we had a large cage for him.

The middle of July I got a leg band for him from an ornithologist at Kent University. Our bird began to go farther away and would stay away longer but would always come back in the evening for food. The last few days he was with us we could no longer pick him up. In late August, he left us. We will eagerly wait and hope for his return in the spring.

MRS. L. G. SHILLING
North Canton, Ohio

An "Assist" from Audubon Magazine

Since I have been a subscriber to your wonderful *Audubon Magazine*, and have read the articles and enjoyed the clear-cut photographs accompanying them, I have become much more aware of nature's beauty.

Recently, when a rain fell in our rural community, listening to it was like hearing sweet music. Soon after it stopped, I went outdoors in order to smell the good earthy fragrance that follows a rain. I looked overhead. The sky had on its pretty blue dress—one with a lovely white trim!

MRS. ARTHUR C. HOOP
Chino, California

More About Traffic Killed Animals

In the November-December 1957 issue of *Audubon Magazine*, Mr. William Bowman of Orrville, Ohio, in a letter writes, "—birds that live along our roadsides may be subject to almost complete annihilation in the foreseeable future—." While deploring with him the terrible slaughter on our highways, I believe the above statement is too pessimistic.

During the last 17 months I have driven 24,000 miles, mostly in daily roundtrips of 60 miles to and from work over highways U.S. 395 and U.S. 80 in California. These are very heavily traveled roads, and yet the kill of diurnal creatures on them is very low—the toll of nocturnal ones is terrible. I can remember less than a half-dozen small birds noted killed, but there have been many barn owls and two long-eared owls.

Part of this route that I travel is through open pastureland, and part through brushy canyons. Meadowlarks and horned larks are common in the open areas, and brown towhees in the brushy ones. When crossing the highways, these three species and occasionally others do not try to cross through the line of traffic but fly up and over the highway, then down again on the other side. Even roadrunners have been seen crossing the highways in this way. These birds have *learned* to avoid the dangerous traffic, and I believe, will be gracing our roadsides for a long time to come.

Two other factors that help to reduce the number of birds killed by cars are the increasing number of small cars, and the lower, more streamlined shapes of late models of the larger cars. Both are more easily avoided by birds than are big old model cars. I recall a mourning dove which hit the front of one of these big older models just above the windshield, and an acorn woodpecker which hit the upper rear corner of a car. Either would have been missed by a modern car. I drive a small foreign-made car that tapers down to the front, and in 24,000 miles have not hit a single bird. On secondary roads there have been some near misses, and the small size of the car and the fact that the shape deflects the air upward so that the bird is lifted above the car have helped me to avoid them.

Speed causes the death of many creatures on the highways, but it is not always the chief factor. During this period, I have hit two mammals, and in neither case was the car moving faster than 30 miles per hour. Once in a road construction area, a young ground squirrel ran out from the side of the road as the car was passing and was killed by the rear wheel. Another

time as I was just starting up one morning, a jack-rabbit jumped out from where it had been concealed in weeds at the side of the road and landed right in front of the car. I heard its long ears slap against the front bumper, but the hare must have crouched low, for after my car had passed the animal sped away apparently unhurt.

Coyotes are frequent victims on the route that I travel and such kills result from the animal becoming confused at night in the blinding glare of headlights. Several times, early in the morning, I have seen coyotes standing by the side of the highway watching the cars whiz by, and when there is a gap in traffic, scooting safely across to the other side.

FRANK F. GANDER

Escondido, California

Appeal for Help

Ornithologists in Hungary are having a very tough time and we, their colleagues, are in a good position to help them. We can help on a personal basis by sending USED clothing and we can help professionally by sending books and journals. The American Ornithologists Union has a list of needs of their families. USED clothing of all kinds, but especially warm clothes, are needed. All ornithological journals prior to 1945 are needed and many books. Will you help? If you will just write us a note telling what you have, we will send you the name and address of the person who needs it most. Send us a check to help cover the cost of buying and mailing the many books needed and the cost of shipping the clothes collected locally. Make checks out to "Frederick Greeley, Hungarian Relief" and address all correspondence c/o Illinois Natural History Survey, Urbana, Illinois—MRS. FRED GREELEY

NOTE TO READERS

We shall be glad to have your comments about articles in *Audubon Magazine*, or to hear about any of your personal experiences with wildlife which might be an interesting contribution to the letters column of *Audubon Magazine*.

Please write to: Letters, *Audubon Magazine*, 1130 Fifth Avenue, New York 28, N. Y.—The Editor

Flamingo News

FROM AROUND THE WORLD

All photographs by A. W. Johnson, unless otherwise noted.

By Robert P. Allen

IT has been a year-and-a-half since the publication of our research report on the flamingos,* and many events of importance have been taking place in the "Flamingo World" and its related avenues of human endeavor. From the correspondence, reports, and articles that have come to us from far and wide, it is evident that a general interest in the life and survival of the flamingos is now at an all-time high. This is so not only in the Bahamas and Netherlands Antilles, but in more distant India, East Africa, and South America. We are glad that such interest is growing, for it is a major purpose of each of our research studies to arouse public concern for the future of these endangered species, and public support for their preservation.

Our work with the flamingo must be one of continuing interest and responsibility, just as it must be with the ivory-billed woodpecker, the roseate spoonbill, the California condor, and the whooping crane, which also have been the subjects of special research studies sponsored by the National Audubon Society. It is something like bringing a family into the world. Whether these offspring of ours thrive and grow, or sicken and fail, the dutiful parent cannot desert them! So even after our initial studies are completed, and detailed research reports published, we must go on influencing others to do their part in promoting the welfare of our charges, and we must keep in touch constantly with all situations and conditions that concern them.

The past year-and-a-half, as it has concerned the flamingo, is a good example of this. Although field investigations undertaken by us personally were limited to the West Indian race, we were in touch from the first with people interested in flamingos throughout the world. A sound reason for this is the obvious fact that flamingos face much the same pressures and problems everywhere, regardless of race. As a consequence, when our research report appeared, in July 1956, it comprised a summary of our present knowledge of all six of the flamingos—those found in the high Andes, along the coast of Argentina, in Spain and southern France, in East Africa and India, as well as within the range of our own American form.

Thanks to the keen interest of many persons in these countries, it has been our privilege to hear from them from time to time regarding the current status of their flamingos. As one would expect, the reports on the various colonies and their success are both good and bad. But the important thing right now is that people in widely separated portions of the globe are aware of the problems that face their flamingos, and an increasing number of them are doing something about it.

The biggest news of these last 18 months, however, comes from South America, where our colleague A. W. Johnson of Santiago de Chile, with Dr. Behn and Mr. Millie, discovered the previously unknown and never-before-seen breeding place of the little James's flamingo. Mr. Johnson had previously been of tremendous assistance to us by providing a great deal of information and advice regarding the three flamingo species inhabiting the Andean region, where he had in earlier years made three unsuccessful expeditions in search of the nesting site of the rare *jamesi*. In the summer of 1956 he received a copy of our flamingo research report. On pages 30 and 31 he read:

> "Thus the mystery that surrounds this strange, three-toed, little highland flamingo today is matched by an equally obscure history that goes back more than a century. . . . The most astonishing fact concerning *Phoenicoparrus jamesi* is that its habits and nidification have never been described. No actual breeding sites, past or present, are known. . . . Although the fact that *jamesi* has not been observed for so many years may be a result of its isolated range, we cannot but wonder if James's flamingo still survives. At the moment this would seem to be one of the outstanding mysteries of the avian world."

As Mr. Johnson has since written: "This was indeed too much of a challenge for even an amateur ornithologist to resist, so in spite of our 60 years and the rigours and inclemency of the terrain to be visited, there was nothing for it but to organize a 4th expedition to the remote Andean region of northern Chile where James's flamingo was originally found."

Accordingly, the party left Santiago on January 14, 1957, and traveling by pick-up truck, 4-wheel drive vehicle, and mule back covered a

*"The Flamingos: Their Life History and Survival," Research Report No. 5, National Audubon Society, 1956. 16 plates (4 color), 49 figures, 8 tables. $3.95.

The rosy-winged, or greater, flamingo in the colony of the Camargue in France, photographed by George K. Yeates.

distance of 3,125 miles in the next five weeks. In the party were Mr. Johnson and his son Bryan, Dr. and Mrs. Francisco Behn, and Mr. W. R. Millie. Their plan was to visit every possible flamingo habitat in the mountains of northern Chile, from Salar de Atacama as far as Salar de Surire, close to the Peruvian border. But it was a side trip, across the border into a high, uninhabited section of southwestern Bolivia that resulted in the discovery that was the object of their search.

There, on the shores of Laguna Colorada (*Red Lake*), at 14,800 feet, they found both Chilean and Andean flamingos (*Phoenicopterus chilensis* and *Phoenicoparrus andinus*), feeding in great abundance. And then, Mr. Johnson writes, "we noticed that in a small group of about 30 flamingos, one bird seemed to be somewhat smaller and whiter on the back than the others." It was a James's flamingo (*Phoenicoparrus jamesi*), with the characteristic brick-colored legs and the wide yellow area on the bill. Perhaps Laguna Colorada was the place they were looking for!

At this point they met a Quechua Indian, who not only knew in what part of the lake the flamingos were nesting, but was there on his annual pilgrimage to collect eggs for sale in the native villages in the hinterland. When he was asked to take them to the colonies, he made it clear that the way was so difficult that he doubted if such "tenderfeet" would be able to get there. But he finally agreed to go with them, and the next morning, with a rubber boat in tow, they set out. They proceeded, as Mr. Johnson writes, "tapping the bottom in front of us with the oars . . . to avoid falling into occasional bottomless pits where subterranean geysers poured their waters into the lake." At length they reached a large island of salt, with cliffs facing the open water and a large expanse of low-lying, level ground (crystallized sulphate of soda) beyond. "Traversing this," he went on, "we soon found ourselves in difficulties, as the hard surface proved to be interspersed with long strips or belts of salty slime of uncertain depth, through which we had to stumble and flounder at great physical effort."

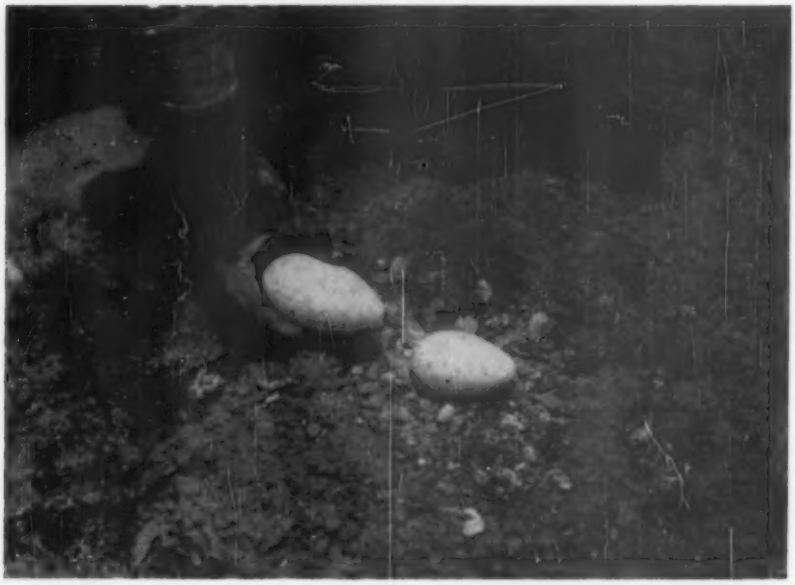
Finally, they reached firmer ground and then the top of a hard salt bluff, "and there, right before us, less than 50 yards away, was a veritable paradise of flamingos, a nesting colony of at least 4,000 birds—flamingos standing in all directions and postures, flamingos sitting on their nests, flamingos walking and feeding with stately dignified gait along the adjacent stretches of open water! On seeing us appear thus, suddenly from behind the bluff, they all rose into the air, filling the sky with their beautiful roseate hues, dark wings

Partial view of one of the three nesting colonies of flamingos at Laguna Colorada in the Bolivian Andes. This is the locale of the only known nesting sites of the rare James's flamingo.

and long necks and legs stretched out in a straight line in front and behind them. However, after a while, on our remaining quiet, the majority decided to return and give us the opportunity to admire them at close quarters. As before, the Chilean and Andean species were present in approximately equal numbers, but we were also able to identify a small, very small, minority of *Phoenicoparrus jamesi*."

In all, there were three flamingo colonies in the lake, but due to the extreme difficulty of crossing strips of bottomless slime, Mr. Johnson and his party succeeded in reaching only one of them. This one contained approximately 1,500 pairs of Chilean and Andean birds, and not more than 20 to 25 pairs of the rare *jamesi*. Valuable and completely new information was obtained on the field identification of the three forms, and on the comparative size and appearance of their nest mounds and eggs. It is an astonishing fact that all three species were nesting together, one the next door neighbor of another, and with no segregation of any sort. How interesting it would be to watch the formation of the chicks into their usual *crèches*. Under such circumstances would each of the three species of adult birds feed only the chicks of their own kind? If he could survive long enough in that inhospitable region, a student of avian behavior would have a field day!

Comparison of an egg of the Andean flamingo (in hand) with one of the smaller James's flamingo (at right) in the nest mound.



The water in Laguna Colorada has a very high salt content (59.32 grams per liter of sodium chloride) and, as so often in the case of flamingo flocks, it seems a wonder that in such an environment they can find food enough to sustain life. From "feeding tracks" in the mud, which the Johnson party observed (see pages 94 and 103 in "The Flamingos: Their Life History and Survival), it is evident that the bottom slime contains microscopic organic matter that may well comprise their basic food. Among such material from the muddy areas of Laguna Colorada, more than 20 different species of diatoms were identified. Also present is a unicellular algae of the genus *Aphenocapsa*, which, in part at least, gives the waters of the lake their brick-red tint.

In our monograph on the flamingos, I erroneously assumed that the Andean flamingo *(P. andinus)* leaves the high altitudes in winter and moves to the milder coastal regions. Mr. Johnson not only corrects this assumption, but explains how it is possible for these birds to survive winter temperatures that in this region may drop as low as 22 degrees Fahrenheit below zero. In the northeast corner of Laguna Colorada the party found a series of hot springs of volcanic origin. These waters had a steady temperature, day and night, of 71.6 degrees Fahrenheit, while elsewhere in the lake the reading was 53.6 degrees. According to the local Indians, this corner of the lake never freezes, and it is here that the birds remain through the winter. In addition, Mr. Johnson writes, "At Ascotan and Surire salt lakes, we found similar in-flows of warm water and such conditions no doubt exist at other points of the essentially volcanic regions which these flamingos inhabit; it is reasonable

to presume, therefore, that it is these ultra-specialized ecological conditions which have given rise to and permit their sedentary way of life and account for the fact that neither *P. andinus* nor *P. jamesi*, notwithstanding their strong powers of flight, has ever been reported from points outside the restricted triangle of frigid and forbidding plateau country which constitutes their known geographic range."

Even during the nesting season the weather can be severe. When the Johnson party was ready to leave the one colony they had managed to reach, and make their way back to the firm ground surrounding the lake, "it was well past 3 p.m. and the usual afternoon thunderstorm had begun. Long before we reached the shore the rain had turned into sleet and then to hail, and on our way back to camp it started to snow. Such is the habitat of the South American flamingos!"

It is evidently common practice for local people of Quechua origin to take flamingo eggs for food, and this has probably been going on for centuries. Still, considering the difficulties involved—transporting the eggs on rafts of llama or sheep hides across the mud and slime to the shore, and then getting them packed and by llama or donkey-back across many miles of rugged country to the villages of the interior—this practice can scarcely result in the extinction of these equally rugged flamingos within the foreseeable future. If the testimony of the Indians themselves is to be credited, the birds replace their eggs after the initial layings are taken, so that they eventually succeed in hatching their young. The fact that the colonies continue to survive in these same sites year after year, and, according to Mr. Johnson, exhibit "no tangible evidence of any marked diminution in numbers," suggests that the Indians and the flamingos of these remote heights, both of them relatively indigenous, have come to a sort of understanding in matters of survival. The human population is sparse and too poor as a rule to own firearms, and even for them the great difficulty of access must deter all but the most resolute. The natural wariness of the flamingos also operates in their favor, while in the near future, as Mr. Johnson points out, "there is little or no likelihood

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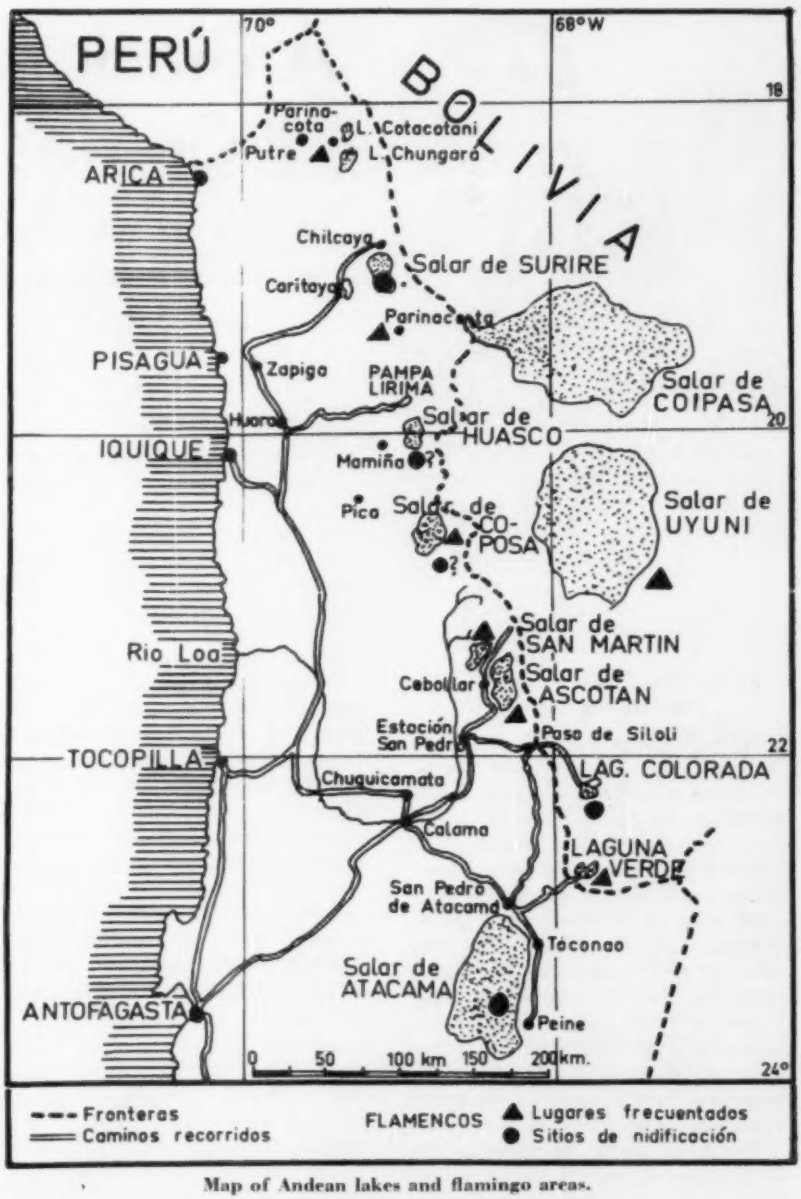
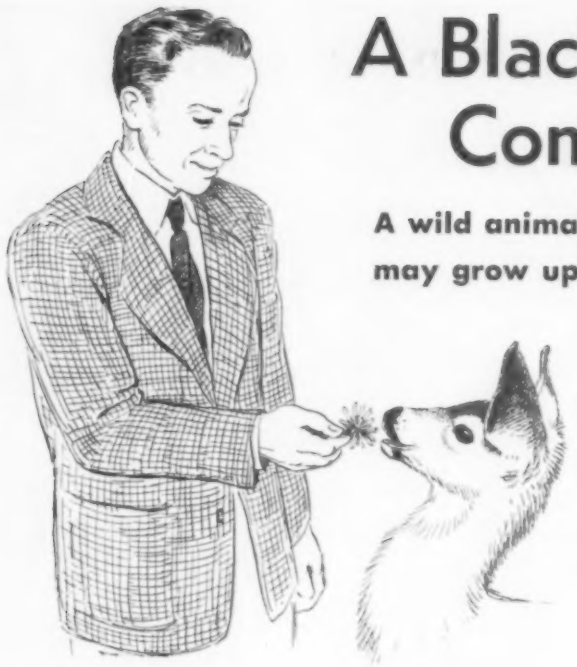


Map of Andean lakes and flamingo areas.

The "expedicionarios" after two weeks among the flamingos. Left to right, A. W. Johnson, Mrs. Behn, Bryan Johnson, and W. R. Mille. Seated is Dr. Francisco Behn.

A Black-tailed Deer Comes of Age

A wild animal, taught not to fear mankind, may grow up to be tragically out of place.



By Irving Petite

ONE June day, a black-tailed fawn ran into the yard of our home in the wooded Tiger Mountains east of Seattle, Washington. Most young deer of the Pacific Northwest—whether their parentage is of white-tailed, black-tailed,* or of mule deer—are born in late May or in June. Perhaps dogs had chased this one, and had frightened his mother away. Whatever was the tragedy that had separated them, she never came for him. We called the fawn "Man," because of his forthright, independent way that had apparently been his from birth, and which he never lost.

Far from being voiceless, as we had supposed deer were, we found Man to be as vocal as a human child. He "mewed" like a kitten, and whenever he wanted food or companionship he bleated loudly and demandingly. This habit continued until he was in his third or fourth month. Then his voice changed, but even at 15 months he uttered a nasal *"nmph"* or *"omph,"* audible throughout the house when he was at an outside door.

At first Man drank milk from a bottle, but by the third day he was nudging kittens from their bowl of milk and drinking from it on the back stoop. A Washington State law, enforced by the Game Department, does not allow deer to be penned or shut up, so Man did his eating outside, except when he leaped through an open window into our house, or wedged in past the opened kitchen door. He shared cat- and dog-food of all varieties—canned, cubed, or kibbled, with or without "liver added." Sliced bacon also pleased him and he ate it raw. Like any infant, his lips were often dark with sand and dirt. Coal, washed down a nearby slope from a deserted mine dump in the woods above, likewise satisfied some mineral deficiency of his, or a curiosity in his appetite.

Like Ferdinand the bull, Man loved flowers, and he ate them whole. Around our house and garden, he specialized in sweet-smelling cabbage roses, and spicy-fragrant hawthorn blooms. Chrysanthemums he liked, particularly those grown out of season in hothouses. He enjoyed all small flowers—such as violets—and the flowering racemes of trees like broadleaved maples, which were still lying on the ground in June. As they matured, he also ate the yellow blooms of Oregon grape, and the pink, cup-like flowers of red huckleberry. In our dooryard, he ate crocus blooms, and the trilliums

Illustrations by Walter Ferguson.

* The black-tailed deer of the Northwest Pacific Coast, formerly regarded as a distinct species, *Odocoileus columbianus*, is now considered to be a subspecies of the mule deer, *Odocoileus hemionus*.—The Editor

that we had transplanted there from the woods. He did not care for daffodils.

Flowers that did not appeal to Man included wild snapdragons, foxgloves, dogwood blooms, bleeding heart, and the oxeye daisies that grew up with the grass seed we had purchased from Iowa. But he did relish dandelions and their seed crowns, wild white daisies, thistles (he carefully avoided the thorns), "miners' lettuce," and dozens of others. As his first summer lengthened, he browsed on the leaves of apple and cherry trees, he pruned the plum trees, ate whole raspberry plants—the leaves, blooms, and berries. Our yard and the surrounding 160 acres were *his*. We never once chased him from any place; he was such a svelte, graceful animal and such a wonder to behold as he pressed down the raspberry canes to browse them, or to nibble at low-hanging crabapple boughs. And like a domestic goat, he stood on a tree stump and stretched high to get the leaves of a willow tree in his front teeth.

Paste from the labels on cans lured him, too, and when a door was open and he tap-danced into our house, the slick paper-covers of books disappeared down his throat. Man liked both pocket books and the classics—James M. Cain, the College Standard Dictionary, Keats & Shelley, the journals of Lewis & Clark. He liked to lick metals and machinery: doorknobs; the car, after a washing; the axe blade and the wedges; the teeth of the crosscut saw as it sang through logs. Often we had to stop sawing while Man ate fresh sawdust or the chips the axe had flung from an undercut.

Unlike most domestic animals we had raised, we discovered that Man had a single-hearted, intense, *loyalty* to humans. Every day he traveled over his same paths on our property to graze (unless jolted off-course by dogs); every morning and night for over a year he returned to our house, and he missed only three evening calls in all that time. The three "misses" occurred when the weather was unusually stormy or when he was badly frightened by roving dogs.

Even in his freedom, Man adopted humans completely, and followed us at work or play. Identifying us by his keen sense of smell, and by our voices, he ignored other people. Bedded alongside a woods road, he let others walk past within a few feet of him, but when I returned home and walked the road, he came leaping out to greet me. Then he would lick the legs and knees of my overalls or lick salt from my forearms, as his expression of joy at my homecoming.

Next to the salt in human perspiration, Man had a taste for the leaves, twigs, and berries of a buckthorn, *Rhamnus purshiana,* commonly called Cascara Sagrada. This medicinal shrub, from which digestive remedies are manufactured, grows only in the Pacific Northwest. Man had common, even slightly vulgar, tastes, too. Sometimes he took a long drink of used dishwater, which had a dash of purex in it, and when we went swimming, he ate our soap. Cigarettes and cigars he relished (and even the cellophane packages), without preference for any brand. In Man's first autumn, he ate fallen leaves; sometimes it seemed that their colors attracted him, or perhaps it was their crispness. In the winter, he munched dead thimbleberry leaves, cedar foliage, and blackberry vines. Then he would come up to the house for a handout of apples or banana skins.

Wherever Man appeared on his rounds—whether he was grazing, resting, standing near our house, or overseeing our field work—his ears were his constant guide. Even the semi-domesticated doe of W. H. Hudson's *"A Hind in Richmond Park,"* had "wild" ears. Hudson observed her lying with one ear cocked forward to catch the sounds of the near path, the other ear at a different angle, to catch woods sounds.

This can be observed by anyone who has ever seen a deer at close range, but particularly in wild ones whose ears are nervous "parabolic antennae," constantly tilted, shifted, and always cocked.

The first time Man heard the creek gurgling, his ears flicked with the delicious sensation its sound brought him, and he made small, running, jog-steps along the ledge of the canyon to look down at it in the ravine. Later, the creek practically became his home. He stood in it to drink, as it came, icy cold, from the mountains. He waded along its banks and ate dead leaves or the blackberry foliage that overhung it. A thicket of thorny-stemmed wild plums on a terrace above the creek became his favorite bedding ground. He lay concealed there, rain- or wind-lashed sometimes, but when snow came and the plum leaves were fallen, he went into the dense cedar thickets to sleep.

Man's world was mostly a safe and happy one. When dogs chased him, he would go off across the fields with a springing run—bouncing off the ground with all four feet and coming down on all four hooves at once. Within minutes we would hear the dogs yelping on a cold trail and might catch a glimpse of Man wading the creek or kneeling to get under logs, far in advance of the dogs. Once, when he was quite young, the dogs nipped his ears a bit; but by

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SOME PECULIAR

Buffalo treehoppers live in grassy fields until they are mature; then they migrate to trees and shrubs.

PYGMY INSECTS

All photographs by the author.

By Harold V. Green

IN countless fields throughout the land there can be seen, during the early summer, thousands of little bubble masses attached to grasses, flowers, and shrubs. Each summer for thousands, perhaps millions of years, these bubble mounds have been making their appearance. For ages man has been observing these froth masses, and has called them "frog-spit." Even today this term is used by people who should know better—or at least, who would know better if they would get down on their knees and show a little real curiosity instead of simply accepting the age-old tale of how they are caused by frogs which are said to expectorate often and copiously all over the landscape.

In truth, these "frog-spit" masses, these bubble mounds, are not masses of spittle at all. They are the foam homes of peculiar pygmy insects, commonly called froghoppers. More accurately, they are the homes of froghoppers in the pre-adult, or nymphal stage. These cercopids, builders of the snowy bubble mounds, are relatives of the shrilling cicada, whose piercing song can be heard during the late summer.

Truly, the bubble-building froghoppers are the hop-o'-my-thumbs of Insectland, often being less than an eighth-of-an-inch in length. Usually, the nymphs, or young froghoppers, are of a pale yellowish or greenish-yellow color. However, as mature insects they are most often of a drab brown or gray color. Thus, in both stages they are rather inconspicuous insects—both from the point of view of size, and of color.

Often, during the summertime, I lie down in the grass and open a bubble home and remove one of these pale, fragile pygmies. Usually, I then place it on another weed-stem, shortly to see it settle itself head down and start to sink its sharp, little beak into the fibrous stalk. Soon the sap—lifeblood of the plant—starts up the tiny, hollow beak of the Lilliputian insect. It is nothing short of amazing the volume of sap this pygmy can drain from a plant, in a matter of minutes. Sometimes, two or more of these insect nymphs will work together under the cover of a single bubble nest. One day, I "hit the jackpot": I found six froghoppers working together, their bubble nest being the largest to be seen in the surrounding area. Never again, since that day, have I ever found so many under the cover of a single mass of foam.

In other lands there are relatives of our builder of bubble houses. One species, which is larger in size than any of our froghoppers, is said to inhabit certain trees in great numbers, and, as a result of their sap-sucking activities, there is an almost constant dropping of fluid from the twig tips. Thus has the legend of the "rain-tree," or "weeping-tree" come into being. Moreover, it has been reported that a few dozen of a species found in Madagascar are able to produce, through combined effort, a full quart of liquid in the space of less than two hours!

The manner in which the little cercopids build their bubble nests has been the subject of much debate. Some observers have claimed that they are produced by the insect whisking its tail about, like a miniature egg-beater, until the surplus liquid which is emitted from the tip of the abdomen is beaten into a bubbly froth. Others, simply skim lightly over the matter, saying "bubbles are blown from the tip of the abdomen." However, Jean Henri Fabre, "that incomparable observer", as Darwin called him, reported long ago, in his chapter headed *The Foamy Cicadella*, that the insect is equipped not only for blowing bubbles, but also for gauging their size. Fabre then went on to explain where the air-measuring apparatus is located in the body of the young froghopper, and how it operates.

Two delicate froghopper nymphs (young, or immatures) work together to build a bubble home.

Head-on, or front, view of a newly transformed, adult froghopper. It has just left behind its nymphal skin and its bubble home forever. Note its facial resemblance to its close relative, the cicada.

The nymphs of froghoppers are sensitive to heat and light. These nymphs left their bubble home and climbed up the stem of the plant to escape the hot beams of the photographer's spotlight.

Situated in the froghopper's hinder end, at the tip of the abdomen, is a little pocket which opens to the atmosphere by means of a Y-shaped orifice. When the insect raises its tail-tip, the lips of this orifice open, permitting a small volume of air to rush into the tiny pocket, where it is trapped as the lips of the opening close. Then, the tail descends into the pool of viscid liquid which has been eliminated from the insect's body after having been processed within its digestive tract. As the tip of the abdomen is submerged in the liquid, the trapped air is released, creating a small, glistening bubble. This, then, is the secret blowing apparatus, the miniature bellows which collects, measures, and delivers the air used in blowing the bubbles. When the up-tail-down-tail action is repeated many times, the froghopper is hidden from sight, covered by a protective envelope of bubbles.

Life for the froghopper, snug within its bubble home, is one round after another of almost constant sap-bibbing. As the vital fluid of the plant passes through the pygmy's digestive tract, certain nourishing food elements are removed, glandular secretions are picked up, and the surplus liquid is eliminated from its body. Once the insect has blown itself a complete home, it has no need of the relatively large volume of fluid which constantly wells from the tip of its abdomen as it feeds. Therefore, this liquid collects in a pool around its body until, finally, surface tension effects can no longer compete with the pull of gravity, and the liquid runs away, down the plant stem.

Just why does the froghopper go through the strenuous routine of building a bubble house? Well, that point is still being debated by scientists. However, it would appear that this frothy envelope has several important functions, which seem quite obvious after a little careful observation.

In the first place, it protects the tiny froghopper — a rather delicately constituted insect — from the desiccating effects of a dry atmosphere. Secondly, these insects are allergic to and affected by, bright light, and more so by excessive heat. This I have observed while photographing them under the intense il-

lumination supplied by spotlights. That it is the heat, rather than the bright light which bothers them, I have proved, at least to my own satisfaction. I have found that by placing heat-absorbing filters in the beams of the spotlights, so removing much of the heat, the tiny insects kept on working – despite the high level of illumination. However, when I removed the heat filters, the insects would soon move out of the light, and hence, the heat. A third reason for the bubble nest is that it makes an effective barrier which protects the cercopid from attack by other insects which have predatory ways. Even so, there is one minute wasp which does prey on the froghoppers. "It drags the baby hoppers," writes Edwin Way Teale, "from these foaming retreats and carries them away to fill the larder for its unborn young."

At the beginning of the froghopper season, the bubble nests are small; but as the season progresses, larger ones are built. Increasing in size as it gets closer and closer to adulthood, the insect must, of necessity, have larger and larger homes.

With the last molt, at which time its wings make an appearance, the diminutive insect leaves behind its nymphal ways and is ready to face life as a drab pygmy member of Insectland. Its once foamy, glistening house of bubbles, empty save for the discarded nymphal skin, is dried and broken, left to crumble away to an infinitesimal bit of dust.

Treehoppers, or membracids, are closely related to the bubble-blowing froghoppers. They are extremely grotesque pygmy insects, truly "nature's little jokes." In fact, they are so fantastic, so grotesque, that their forms "suggest that they are creatures of an unhealthy imagination rather than living facts." The quotation is taken from the writings of Edward Step, who goes even further and suggests that these tiny creatures should be called "nightmare insects."

These peculiar pygmies are deformed, yet ludicrous in appearance. In most, the prothorax is broken up by lumps, bumps, and humps, and adorned with horns, bulbs, knobs, spines, notches, rods, and blisters. Indeed, some are so fantastically constructed that it is impossible to describe them. These forms are, for the most part, to be found in Cen-

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Close-up view of a cicada's face. It is a large relative of the tiny froghoppers and treehoppers. It, too, sucks up the juices of plants for its sustenance.

Two nymphal treehoppers on the stem of a grass. One has moved out of the photographer's light and is shown in silhouette.

Want to Start A Bird Club?

An experienced organizer offers some sensible rules about the founding of clubs—for people interested in birds, nature in general, or in the conservation of wildlife.

By Louis C. Fink

THIS is a legend they tell in Atlanta, Georgia: More than 25 years ago, a boy wanted to start a bird club. Unfortunately, he knew of no one else who was interested. He went to the public library and on the flyleaf of a bird book he wrote:

"If anyone would like to help me start a bird club in Atlanta, please write to Carter Whitaker (followed by his address)."

That's the direct approach, and it worked. Today, the Atlanta Bird Club has 300 members, holds two field trips a month, sponsors the Audubon Screen Tours, enjoys a monthly meeting, has a bulletin, conducts a Christmas Count, works with the Georgia Ornithological Society, and in general provides a full program of birding and conservation. There are other ways of starting, of course. In Augusta, Georgia, a few birders published a story in the local paper about their activities. In New Jersey, the Urner Ornithological Club was formed by a group of men who studied under the late and noted ornithologist Charles Urner.

The approach to starting a club is not the important thing; interest and enthusiasm are the requirements. It takes only two people with a love of nature to start a club—and that club may be as formal or as informal as you like. However, there are certain rules of success in any venture, and starting a bird club is no exception. Let's take a look at some of the problems and some of their suggested solutions. If you want to start a club, these ideas may help you. If you already have a club, you may want to check up on yourself.

Start with a few people, and meet informally. Take a few field trips and have a few trial meetings before you go any further. When you are ready to broaden your group, ask your local newspaper to publish the fact. Have a meeting in some accessible place with a good speaker, and see who shows up. Don't worry in the least about getting a *large* number of people. It is far, far better to begin building with a small group of enthusiastic workers than to launch your club immediately with several hundred men and women who drop out after the first few months. Having a small group will also help you to formulate a program of action as you go along.

After two or three meetings with a temporary chairman, you ought to know enough to make more permanent plans. An eminently sensible procedure at this point is to *draft a constitution and by-laws to govern your future actions.* Have a lawyer's help if at all possible. If not, go to the library and take out any standard reference work on parliamentary law and use it for a guide.

Don't sneer at a constitution as being so much legal mumbo-jumbo. It is a sure way to avoid trouble later on. I know of one active bird club today which wishes it had a more specific constitution. When the president suddenly moved out of town, this club found that there was no provision for a succession to the office. Jealousies among aspirants for the leadership broke out, and the club was damaged for months afterward. Furthermore, drafting a constitution will help you to decide some of the matters that must be settled. Also, it can provide specific duties for all the members which increases their interest in, and responsibility for, the success of the club. Let's take a look at some of these provisions, just as though we were starting our club now.

Article One of the constitution usually specifies the name of the club. Every bird club that I am familiar with is named either after an individual prominent in ornithology, or after the area that the club will serve. If the latter, don't limit yourself. Don't call yourself the Little City Bird Club when in fact you may draw members from the whole county or even from the northeastern half of the state. A famous, long-time bird club, active in southern New Jersey and eastern Pennsylvania, calls itself the Delaware Valley Ornithological Club.

About the Author

"I spent most of World War II in uniform in Augusta, Georgia, Dr. Fred Denton introduced me to the Georgia Ornithological Society, and although gas rationing kept their numbers low, their enthusiasm was high. Fred and I tried to organize a club in Augusta, but it was not until after the war that the Augusta Bird Club became a reality.

"Meanwhile, I had been to the Audubon Camp of Maine. One of its great attractions was the forming of friendships; I still receive from people I met there, bulletins of bird clubs from many parts of the country.

"In 1951, I made my home in Atlanta and promptly joined the Atlanta Bird Club. We have a nucleus of trained observers and a membership of 300 supporters of conservation. For the past four years, I've been serving the club as publicity chairman and editor of the club bulletin. It has been said that I can write an article about a bird more quickly than I can identify one in the field; nevertheless, I take my turn at leading our semi-monthly field trips. My biggest pleasure still comes from taking a group of Boy Scouts out in the field and starting them on their way to the Bird Study Merit Badge.

"Bird clubs to me have principally meant two things: the lasting friendships that develop among men and women who get outdoors to study birds, and the chance to learn a little more about birds by keeping my mouth shut and listening to my betters. I recommend this technique to all who would learn!"

—Louis C. Fink

"If you are going to deserve the name of 'bird club,' plan to have at least two trips a month." Photograph of a group on a field trip at the Audubon Camp of California.

Let your name denote your function. If you are going in for serious scientific study, use the six-syllable word and name yourself an "ornithological society." But if you are to be just a congenial group of friends who promote conservation and take an occasional bird walk, call yourself simply a "bird club." There is a third choice. That is to become a branch of the National Audubon Society, in which case your name becomes "XYZ Audubon Society."

Many clubs have found it a great advantage to them to become branches of the National Audubon Society. The name has a wide appeal and commands community respect. The Society assists branches in soliciting new memberships and contributions, and the name serves as an attraction to speakers for local programs.

As an alternative, or an approach to becoming a branch of the Society, clubs may simply become an affiliate. In either case, whether a branch or an affiliate of the National Audubon Society, the club receives, five times a year, the Audubon newsletter called *The Flying Egret*, which offers information about the activities and projects of other clubs throughout the country—their field trips, programs, community services, displays, and other activities. Branches and affiliated clubs also receive *Audubon Magazine*.

Article Two will explain your purpose. What are you trying to do? Have a social group interested in good fellowship? Improve your own knowledge of wildlife? Engage in scientific studies? Educate children? Are you interested just in birds or in all wildlife? Make it clear in your stated purpose.

Membership is delegated to Article Three. May anyone join? How old shall they be? Most clubs provide for student memberships at reduced rates, particularly if they are in a college town where the students may be doing good ornithological research. Your future members come from the youngsters, so encourage them. Many bird clubs have a separate section for their younger members, in which activities, planned for them especially, are carried out. These young people like to take over the responsibility for one or two of your meetings each year, which is an excellent way to encourage their initiative and leadership.

If you are going to be a branch of the National Audubon Society, regular members will pay $5 a year, of which $2 will pay for a year's subscription to *Audubon Magazine*. The remaining $3 will be split equally and your club will have $1.50 to carry on its own work. You may also want to provide for special sustaining members, life members, student members, and even husband-wife joint members. A good guide is the mimeographed leaflet for starting a branch of the National Audubon Society. To get a copy, write to the Society at 1130 Fifth Avenue, New York 28, N.Y.

Your next constitutional provision will probably be for meetings. It is normally the custom to meet once a month. The larger clubs have a tendency to meet in public libraries or schools, usually on a public transportation line. Smaller clubs meet in private homes. There should probably be provision for an annual meeting—a special affair which need not be described in the constitution. When you finish your first year, celebrate with a dinner, or a picnic near some good birding area. Make it a gala occasion capable of drawing every member and some prospects, too.

Your constitution should provide for the election of a board of directors. This is a subject that needs attention, so think it out carefully before you act. Personally, my choice is to have a "Board" which carries on most of the business affairs of the club. The reason for this is to have your monthly meeting a time of study and enjoyment of birds and other wildlife, with the business portion cut down to a few minutes. It works in many places, and it can for you, too. Nothing drives away as many members as a long, dull business session.

With the board handling most of the business, your club meetings can hear a few simple reports and vote on just the major issues. It does not belong in the constitution, of course, but if I ever serve as president of a bird club, I'm going to ask that all reports be submitted in writing. Some people love to take the floor

and monopolize attention, and they should be discouraged. Full information, yes; detailed and bragging accounts, no!

The officers you need are the routine ones. A chairman of the board of directors, who may or may not be the same as the president of the club. In any case, the president will preside at meetings and appoint committees. A vice president is provided in case the president cannot serve for any reason at all. A secretary and a treasurer with the usual duties complete your staff of officers.

A program committee is essential to success. If you have a monthly meeting, there must be a meeting place, a speaker, a film or a topic for discussion. Planning a good program calls for initiative and imagination. Perhaps the program chairman will do this job—usually the committee chairman is the busy one. However, it's an excellent idea to have sizable committees to share the burden. My own suggestion is that *every member* be on some committee, and thus eliminate those along for a free ride.

If you are going to deserve the name of "bird club," don't plan on doing your work indoors. Nobody ever added a new species to the state list by sitting at a meeting. Have a field trip committee which will plan at least two trips a month. Find new places to go; get the members to suggest their favorite hiking grounds; visit the distant lakes and oceans if you can. Transportation is one of the chores of this committee; many good observers might not be able to get the family car.

Part of the satisfaction of a bird club is in sharing the results of your work with other people and with other clubs. I heartily recommend a bulletin, even a simple mimeographed job. It should contain a list of birds seen in your area that month; a notice of the next meeting and field trips; some hints of birds to come in the next season; and accounts of other activities.

Maybe your publicity committee will handle the bulletin. Perhaps it will be your education committee or conservation committee. Whatever you call these committees in your constitution, just make sure they exist. You want reasonable publicity in all media — newspapers, radio, TV, library displays, and so on. You want a conservation committee to check on local and national laws, and to urge action when necessary. In several cities, the conservation committee has had the city itself declared a sanctuary, and has established special bird-study areas in public parks.

Conservation education should be another important function of your club. Any bird club, in my opinion, has a moral obligation to help. You may not be able to start at once, but as your club grows, you should work with young people. The Boy Scouts and Girl Scouts will welcome some volunteers to help with nature study. Your club can be of immeasurable help to your local Audubon Junior Clubs. The National Audubon Society's headquarters in New York City will be glad to send you a list of all Audubon Junior Clubs in your area. Your bird club can be a great inspiration to these youngsters by organizing field trips for them, by inviting them to meetings that will be of special interest to youngsters, and by occasionally providing the Audubon Junior Club meetings with a speaker from your club.

Schools and garden clubs will ask you for speakers. As you accumulate funds, plan to buy some bird slides from the National Audubon Society and have your club obtain a projector to show them. A common arrangement is to ask the audience-club to contribute $5.00 for each appearance, to help pay for supplies. You may be lucky and find that some of your own members take either still or motion pictures.

Bird study will be more fun—and your club stronger—if you affiliate with state and national organizations. Pettingill's guides to bird finding* are books which will list other clubs in your area. Exchange literature with your neighbors; join the state bird organization (most of them have a magazine that will keep your members posted on new bird discoveries); if possible, get at least one subscription to *Audubon Magazine, Audubon Field Notes, The Auk,* or possibly the *Wilson Bulletin,* and pass them around to your officers. Such literature will describe national projects in which you can participate: migrational studies, moonwatching, Christmas Bird Counts, spring bird censuses, the conservation of nearly extinct species, and so on. Don't try to do everything, of course, but if your club can have one or two specific projects, these will give your members and your club an active purpose.

In order to raise money for your club, and to inform people generally, nothing beats the Audubon Screen Tours, a program under which nationally famous speakers come to your city with their own color films in public appearances.

Your club may or may not be a scientific (as distinguished from a "popular") bird club, but there is one valuable project you can begin in any status. Here is something that everybody can contribute to in the beginning. After every member has made observations and contributed his past records, let the experts in your club take over and assemble the data. In Atlanta, Georgia, William Griffin and Richard Parks had such a list printed by the offset process and distributed copies at cost. Called "Occurrence Extremes of Birds of the Atlanta Region," this list includes more than 200 species of birds, and tells whether they are residents, nesting birds, migrants, etc.—with dates of early and late appearances in our own territory. Such a list is invaluable to a beginner and even to a veteran moving into the territory.

The office of the U. S. Fish and Wildlife Service in Atlanta has a similar list, which gives the status of the bird and tells whether to look for it in woodlands, swamps, farmyards, and so on. Recently, in Tallahassee, Florida, I was given a typical field record card—confined to birds of that area, which gave their status in a simple code that took little room. The Georgia Ornithological Society has printed a bound volume, which is titled "A Preliminary Check-List" because its authors realized that more work would be done on it later.

Let me add a word about indoor meetings. Of course, you will have them. Keep the business portion as short as possible. Strike a balance between pure entertainment and pure study, but don't ignore either. For example, your leading members can give talks on bird identification. Some one else can discuss bird books

* "A Guide to Bird Finding East of the Mississippi," and "A Guide to Bird Finding West of the Mississippi," Oxford University Press, New York, N.Y.

(with the help of the local library, which is glad to assemble its books on the subject) and binoculars. If you have any biologists in the area, ask them to talk on the coloration of birds; bird anatomy; new species, such as the cattle egret; migration; bird-banding; bird-flight; the various food-habits of birds; and the whole range of subjects available to an ornithologist. For entertainment (with educational value) consider films. There are many sources: the National Audubon Society, the U.S. Fish and Wildlife Service, individuals, state game commissions, national and state parks, and the commercial film-renting organizations listed in the yellow pages of your telephone directory.

I believe that an occasional picnic or formal dinner is a good thing. I think it is a mistake to have "refreshments" at every meeting. It is too easy for a bird club to become nothing but a social organization. In that event, your good birders will drop out and the social-minded members left will not do much bird-study or conservation. This is not to say there are not many good birders who are limited to their own backyards; the measure is not so much the ability to take arduous field trips as it is the desire to improve, constantly, one's own knowledge of all nature.

Finally, run your meetings in a business-like way. Keep the business short; keep the reports to essentials. Follow an agenda and don't be afraid of parliamentary procedure. Get a copy of Robert's *Rules of Order* or some other standard parliamentary guide and use it. Adopt a constitution as soon as you can, and stick to its provisions. The Constitution of the United States has been amended more than 20 times, so don't think that if you adopt a constitution you will be stuck with it.

There is no limit to what a well-organized bird club can do. Set your own goals and spell them out in a constitution for all to see. Publicize your activities and then grow slowly, building your strength as you build your membership. You can make a real contribution to the storehouse of human knowledge; you can have fun and relaxation at the same time. Hundreds of thousands have done it—so can you! —THE END.

HOW IT GOT ITS NAME

pelican

Illustration by Walter Ferguson.

By Webb B. Garrison

At least 25 centuries ago, outdoorsmen knew that some birds peck holes in wood. So from *pelekys*, Greek term for "ax," any feathered woodcutter was called a *pelekon*. This was the significance of the name as employed by the greatest of early scientists, Aristotle.

Partly as a result of his influence, references to the pelekon crept into varied types of literature. Some authors used the name without having a clear idea as to the bird it indicated. Such was the case with St. Jerome, whose monumental translation of the Bible was standard for many centuries. It included a reference which, when later rendered into English, became "pelican of the wilderness."

English readers had no notion of what that bird might be like. Some time later after 1400, they became acquainted with a big-billed fellow that has a pouch for storing fish. Perhaps this odd specimen was a pelican! Once christened in such informal fashion, the name stuck—in spite of the fact that no pelican has a beak designed to serve as an ax.

—THE END.

The Roadrunner*

Photographs by the author.

By Frank F. Gander

IF you travel much on the highways of any of the southwestern states, sooner or later you will see him—that strangest of birds of the region, the roadrunner or *paisano*. Often you may meet him along the roads of thinly settled regions where he likes to race with the occasional passerby on horseback. But our modern automobiles are too fast for him so he wisely shuns the highways used by speeding cars or crosses them hurriedly when occasion demands that he do so. It was, of course, this habit of running along roads that caused the early settlers to call the bird, "the roadrunner." Spanish-speaking people have given it the name, *"el paisano,"* the countryman.

Quite a fair-sized bird is this runner of the roads, nearly as large as a small hen but more slenderly built and with a very long, expressive tail. The over-all coloring appears rather dull at a little distance as each feather is mottled, the center being iridescent black which glistens green or bronze on the back and wings, and purple on the neck, and this is margined by soft brown and gray.

**Geococcyx californianus*, the roadrunner, chaparral cock, ground cuckoo, or lizard bird, is a member of the cuckoo family, or Cuculidae. According to the A.O.U. check-list of North American Birds (Fourth Edition), it ranges from California to southern Utah, Colorado, Kansas, middle Texas and the lower Gulf coast south through Lower California and into Mexico.—THE EDITOR

Portrait of a roadrunner. A little of the bare skin in back of one of the eyes can be seen. This is fully exposed only when the roadrunner is excited, and raises its crest of head-feathers.

A roadrunner at lower left, on the rock, takes food from the author's hand. The author's left hand presses the pneumatic shutter release to his camera which made this self-portrait possible.

The brown is most pronounced on the breast, while the lower underparts are plain gray. Long feathers on top of the head may be elevated in a crest, and usually when this crest is raised, a patch of bare skin is disclosed which extends back from each eye and shades from light blue to white and then to orange.

One of the oddest characteristics of the roadrunner is its feet, which has two toes turned forward, and two backward. This seems strange when compared with most birds, but it is a feature of all birds of the cuckoo family to which the roadrunner belongs. It is in a group known as ground cuckoos, and there are additional kinds in Mexico and southward. The straight, strong beak and long tail are also family characteristics.

This tail of the roadrunner's is very useful to him. It is as expressive as a semaphore. It is slowly pumped up and down to express indecision, and occasionally is wagged from side to side. It may be thrown up and forward until it almost touches the back of the bird's head, or it may be carried straight out level behind as it usually is when the bird is trotting along a road or running. It may be snapped open and shut like a fan when the bird is nervous, and it makes an excellent rudder to aid in making quick turns when its owner is darting about after active prey.

Much of the prey of the roadrunner is very active. In wild desert areas it feeds principally on lizards, and in cultivated areas mostly on grasshoppers, but practically any kind of small animal life is acceptable to it as food. In addition, it eats a very few grapes and small wild fruits at times. A roadrunner which I prepared for preservation in a museum collection had the recognizable remains of 98 grasshoppers in its crop, together with four of the very sour fruits of the lemonade sumac, *Rhus integrifolia*. Birds living near me at present feed largely on grasshoppers throughout the year except in late summer when young lizards are abundant everywhere. Then they spend much time in pursuit of such prey. At any time they are alert for lizards, and several times I have seen them catch these active creatures in my garden.

One roadrunner which I was watching at close range came suddenly over a large rock that had screened its approach, and then dashed forward and caught a fence lizard. The reptile seemed to be killed or stunned by the grasp of the beak as it did not struggle, and the bird soon swallowed it. I saw another roadrunner in wild pursuit of a whiptail lizard which finally escaped by hiding under a rock but not until after it had lost is tail. After the lizard had hidden, the roadrunner went back and ate the tail that it had broken off its intended victim.

Only once have I seen a roadrunner eat a snake, but they are known to do so quite commonly. The actual capture of the snake was screened from me by bushes, but as the roadrunner raised its head I could see a patch-nosed snake wriggling in its beak. The bird beat its prey against the ground to kill it, and then swallowed it, head first. As the snake was almost two feet long, this took a minute or two. Roadrunners are known to eat many kinds of snakes, including rattlesnakes.

Not only does it eat rattlesnakes, but also such creatures as tarantulas and other spiders, scorpions, and centipedes. It also eats mice and other small mammals, including baby cottontails, and small birds and their eggs whenever it can get them. It eats snails greedily, and whacks the mollusk against a rock or other hard surface to crack the shell and remove it before swallowing. On occasions, some carrion is eaten. I watched one of these birds pick up and swallow a shrew or small mouse which it found dead on the ground. It is not an uncommon experience for museum collectors to have roadrunners visit their camps to eat the discarded carcasses of small mammals and birds that they have skinned for specimens.

Roadrunners are quite apt to visit anyone camped in their territory, for they seem to have much curiosity about the activities of humans. Three years ago I bought an acre of uncleared brush land, and when I started construction work on it, two roadrunners that lived in the vicinity came often to watch me. They raised but one young that summer, and in gathering food for it, they made many trips daily across my acre. By the time the young one left

the nest, the parent birds had become quite accustomed to my presence and moved freely about near me.

One day as I was sitting quietly, the young roadrunner came close to me as it ran to meet its mother which was bringing it a mouthful of grasshoppers. Suddenly seeing me, it was startled and fled back to a clump of sumac. The mother was not frightened so she called to the young one and went to it and fed it. Apparently learning from the example set by the mother, never again did this young bird show fear of me but moved freely around me with as little concern as did the old birds.

From these observations and others, I concluded that roadrunners learn more readily than do some birds. This was shown also by their hunting methods. When hunting grasshoppers, the roadrunner would move openly through the grass and weeds, head held high, and looking alertly from side to side. Every few steps the bird would flick its wings open and shut. It very obviously seemed to be trying to startle the grasshoppers into betraying their presence by movement. Once discovered, grasshoppers seldom escaped the quick stabbing bill of the roadrunner.

When a cicada started singing, however, the bird changed its hunting technique at once. This cicada is a small species which sings from low perches in weeds and brush. As soon as the roadrunner heard one of them, it would crouch low and slink along through the weeds as stealthily as possible, watching ahead to try and locate the singer. Very wary are these insects, and sometimes they took flight before the roadrunner was within grabbing distance. But the bird was successful often enough so that it never failed to stalk one that started singing nearby.

During a hot spell in late fall, I had just turned on a sprinkler in my garden when I saw the male roadrunner coming along the path. He was panting from the heat with his beak open and his wings held well out from the body. When he reached the sprinkler, he pulled himself up tall and slim, flattened his feathers down tight against his body until he looked much like a chicken caught in the rain, and then he stepped in under the sprinkler. For nearly a minute he stood there with the water pouring over him; then he stepped out, shook himself once, and was thoroughly dry. My first thought was that that was a very foolish way to take a bath, but on second thought, I decided that the roadrunner was not taking a bath but just cooling himself a bit. Since then I have seen roadrunners wallowing in the dust like quail or chickens, so quite likely they do not actually bathe in water at all. They drink water, however, when they have the opportunity even though many of them live in very arid regions where for long periods no water at all is available.

The following year, a pair of roadrunners raised five young, and these appeared in my garden one by one over a period of about three weeks so that the three oldest ones were very much on their own by the time the youngest one appeared. From this I knew that their mother had followed the conventional roadrunner way of starting to brood as soon as the first egg was laid, and had laid her eggs singly, with a three or four day interval between each. I did not look for the nest but assumed that it was like others that I had seen—a bulky structure of sticks, lined with finer material, often with broken bits of dried cow dung, and placed rather low in a dense or thorny bush.

Just when the youngest one was getting where it could catch much of its own food, the old male was hit by a car and badly injured. His legs were not broken though, and he got into the brush where I could not find him. I never saw him again.

In the fall, the mother and five young hunted together, and that is the only time I have seen six grown roadrunners foraging together in one field. Apparently the female did not feel the urge to drive the young from the territory as the male had done the previous year. By the first of the year, the group had disbanded, but there were still many roadrunners about. At times there would be as many as three of them calling from the hills around my garden. This "song" of the roadrunner is somewhat like that of the cuckoo but louder and coarser. The bird sits on a rock or other perch with his tail hanging down; then he inflates his crop with air, presses his beak down against it, and straining, forces out his weird calls.

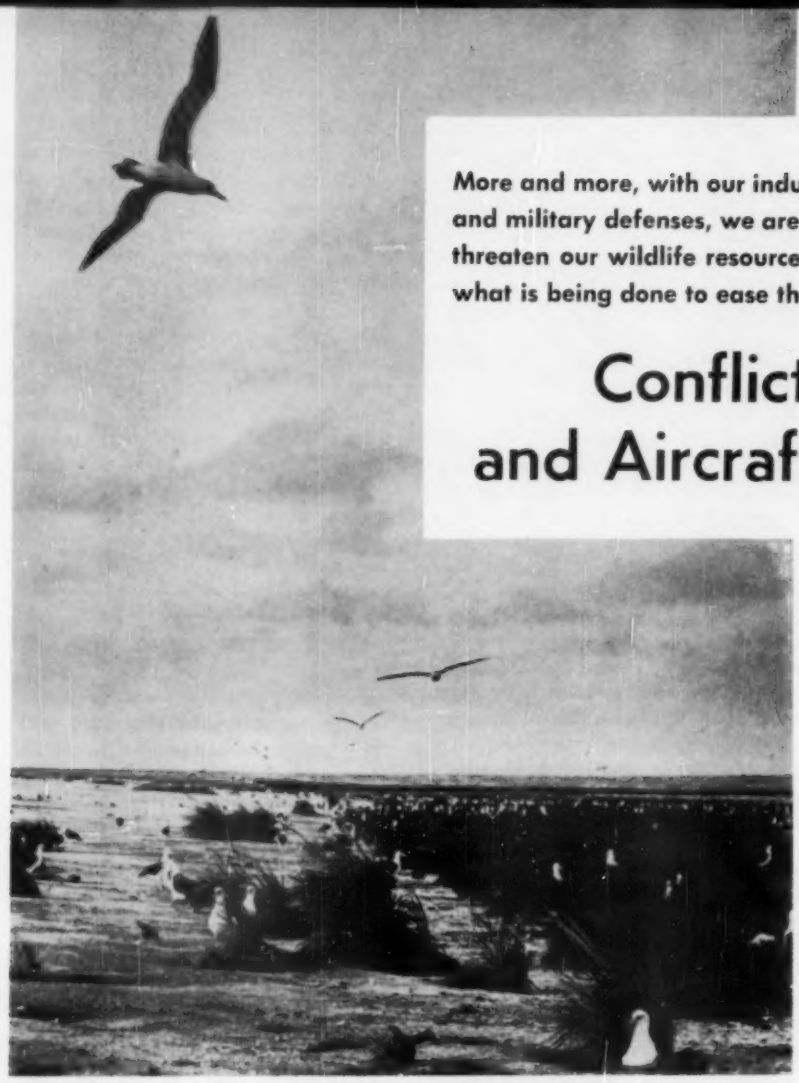
All through the spring months there was much calling. In the chilly early mornings, I would see one or more of the birds sitting on some high point where they could catch the first rays of the sun. With their backs to the east, they would lift their wings and raise their feathers so that the warm rays could penetrate right in to the skin. When warmed up, they would begin their calling.

Roadrunners also have another call, a low *"dut"* accompanied by a rolling of the upper and lower bill. These birds were around continuously all that year, but no young came into my garden.

One bird, a male, has grown quite tame. It came and watched me one day while I was screening compost, and as there were many white grubs in the pile, I tossed these out to the watching bird. It ate an incredible number of them, walked away for a short distance and stood quietly for about half an hour; then came back and gobbled up another mess. From this start, and using mealworms to tempt it, in less than two weeks, this bird was feeding from my hand. Whenever it came near me it crouched down low and made little grunty noises just as I had seen the young birds do when coming to the parent to be fed.

For days, it followed me so persistently that I could hardly get near birds of other kinds, although previous to this, individuals of several other species had been so tame as to feed from my hand. They all mistrusted the roadrunner and scolded it wherever it went. When it was not following me, it was perched up in my oak tree trying to catch the goldfinches as they stopped there on their way to the birdbath. It even got up on my canary's cage and nipped that poor creature on the wing. I decided that the roadrunner was just a little too friendly so I stopped feeding it. Soon it was ranging widely and passing through my garden only at intervals of several days. Now it was again an interesting neighbor, no more perfect than are my human neighbors, but doing so much that is useful that I can forgive it the occasional deeds of which I do not approve. May the time never come when I shall no longer find the strange tracks of the roadrunner along my garden paths.

—The End



More and more, with our industrial progress, population growth, and military defenses, we are faced with problems that seriously threaten our wildlife resources. A government scientist explains what is being done to ease the

Conflict of Birds and Aircraft at Midway*

Photograph of Laysan albatrosses at Midway by Alfred M. Bailey.

By John W. Aldrich

MIDWAY ISLAND is a coral reef encircling two islets of coral sand in the middle of the Pacific Ocean. Although these two little islands, about two miles apart, total only 1,282 acres, they are extremely important to the United States as a strategic naval base. The significance of the Battle of Midway in World War II is still fresh in our memories. At present Midway is the anchor of the Pacific DEW Line—the Distant Early Warning system—designed to protect our territory from future attacks like that at Pearl Harbor. Midway is, therefore, a naval air base of great strategic importance. It is also a steppingstone in the Military Air Transport Service between the United States and its bases in the vicinity of Japan. The air base is on Sand Island, the larger of the two. Eastern Island is practically unoccupied by humans.

Midway is also important to vast numbers of birds of the open sea which must have some dry land on which to nest. Two-hundred-and-fifty-thousand albatrosses of two species – the Laysan albatross and the black-footed albatross – about one-third of the world population of these birds, choose Midway for this purpose, as do other thousands of sooty terns, tropic birds, petrels, and shearwaters. In fact there is very little space at Midway, either above or below ground, which is not occupied by a nesting sea bird at some time during the year. Unfortunately, considerable of the air space above the ground is also occupied by these birds when not actually engaged in their nesting duties. At any time of day, but particularly early in the morning, a cloud of albatrosses is wheeling about overhead, some, unfortunately, over the vital strips of concrete where the aircraft land and take off. It is inevitable that many of these birds are hit by planes coming and going, and occasionally a plane is damaged. It is, therefore, not surprising that officials responsible for the safety of expensive aircraft and the lives of those who ride them are concerned and want to do something about the problem.

On November 17, 1956, I was one of a party of three biologists from the U. S. Fish and Wildlife Service that landed at Midway for the purpose of trying to solve this problem. Other members of the party were Chandler Robbins and Dale Rice. Robbins and I stayed on the island for a month. Karl Kenyon arrived there January 1, 1956 and remained until the end of June. Rice is still there.

The first task was to attempt to determine what part of the bird population is involved in the hazard to aircraft. It did not take long to discover that the albatrosses were the only ones which appeared in numbers in the air over the runways at that time of year. Further studies showed, that, of these, the ten times more numerous and more generally distributed Laysan albatross was the bird chiefly involved with aircraft. In fact, the black-footed albatross, in only about one per cent of total collisions, has now been discounted as a serious element in this problem. In the spring and summer when the sooty terns are nesting on the island they, too, are over the runways in large numbers. During the summer the red-tailed tropic birds frequently gather in groups of several hundred in the air to perform their curious

* Dr. Aldrich presented this address at the 53rd Annual Convention of the National Audubon Society on November 11, 1957. He is in charge, Section of Bird Distribution, Bureau of Sport Fisheries and Wildlife, U. S. Department of the Interior, Washington, D. C.—The Editor.

backward-flying aerial dances, and are occasionally struck by planes. Two abundant species of sea birds divide the night shift in the air over Midway—the Bonin Island petrel in the winter half of the year, and the wedge-tailed shearwater in the summer half. At the present time planes seldom operate in and out of Midway at night and so these nocturnal fliers have not become a hazard yet. The chief objection to these birds so far is that they dig up the lawns with their nesting burrows which are said, also, to weaken the foundations of buildings and pavements.

When it became apparent that the big, black-and-white Laysan albatross was of primary concern to aircraft safety, we focused our attention on finding out whether all or only part of the Midway population was involved; and, if the entire population was *not* involved, what portions of it were. This we did by coloring the plumage of albatrosses that represented segments of the population which were nesting at varying distances from the aircraft runways. First, only birds that were nesting were so marked, but later those which were not nesting were also colored. The non-nesting Laysan albatrosses make up about 15 per cent of the total population. Soon, birds with their white breasts blotched with brilliant red, yellow, blue, and green, much to the amusement of the human population, began appearing, sitting solemnly on their nests all over the island.

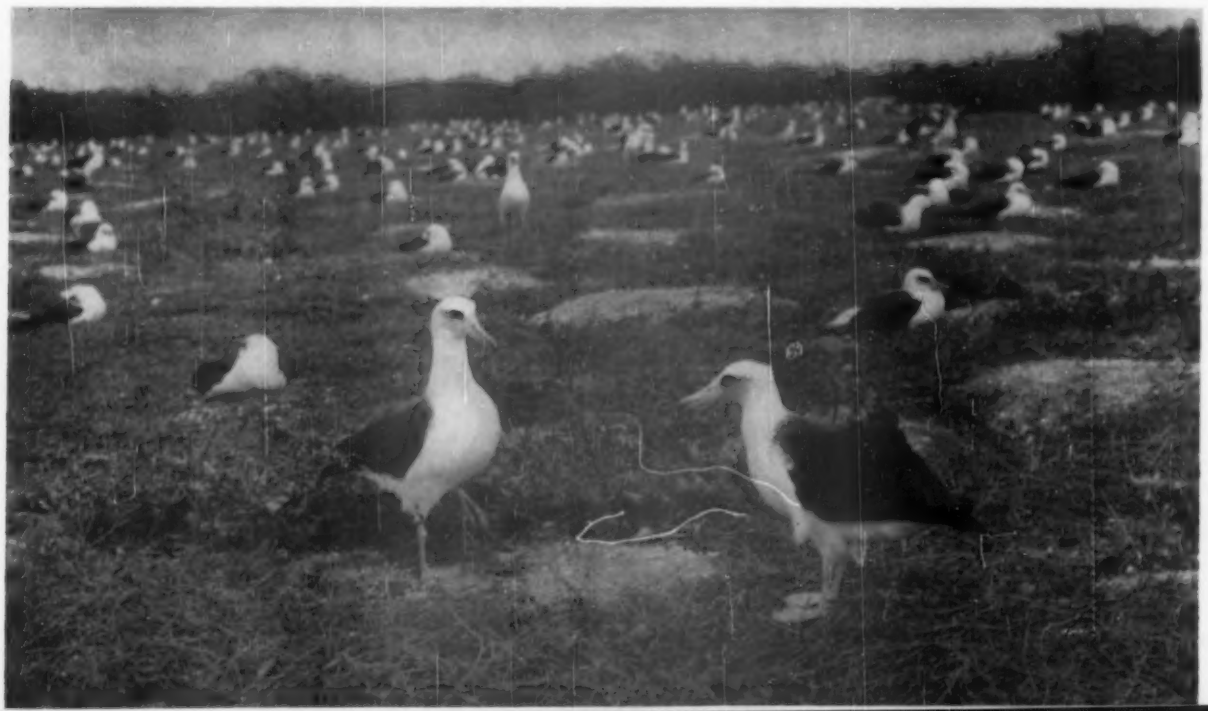
I should tell you that the human occupants of Midway, consisting of about 600 military personnel and about 1,000 Hawaiian laborers, are very much interested in the "gooney birds," which is their name for the albatrosses. To these people, Laysan albatrosses are "white gooneys" and black-footed albatrosses are "black gooneys." Everyone talks about the gooney birds—their comings and goings and curious antics, and are very much concerned about their welfare. After all, the gooneys nest in their backyards and front yards, and around all the office buildings. They compete with pedestrians for the sidewalks and with cyclists for the streets of the settlements. They are very tame and awkward in their movements on land. There is a constant babble of gooney voices during the daylight hours, like those from a great barnyard. A most amazing assortment of sounds are made by these fowls. They cackle like hens, moo like cows, bleat like sheep, squeal like pigs, twitter like songbirds, and shriek like children at play. Hollow knocking sounds are made by snapping their beaks. This may be done slowly or with such rapidity that it sounds like a woodpecker drumming on a hollow stub.

The greatest public interest is aroused by their dances. These are grotesque performances in which two or more birds join in the most exaggerated bowing and teetering, with whacking of bills together and many other quick gestures accompanied by amazing vocal sounds.

The gooneys are so much a part of the life and interest of the island that people miss them during the three months when the birds are at sea, and look forward to their return in the fall. Interest in the gooney birds is at its peak when they begin drifting in from the ocean—each bird on arrival sprawling headlong in a disorganized heap on the unfamiliar element of solid land. Coral sand and asphalt are not like water.

We were interested to discover, from our color-marking experiments, that albatrosses which appear in the air over the runways, and thus are a hazard to aircraft, are about one-half birds which are either too young to nest, or have been displaced in their nesting by construction operations. Non-nesting birds comprise only *one-sixth* of the total island population, therefore it is significant that such a large percentage of the birds over the runways are of this class. Most of the nesting birds that fly over the aircraft runways, as one might expect, are from sites close to the runways; two-thirds of them within 750 feet.

Laysan albatrosses on their nesting grounds, Eastern Island, Midway, photographed by Thomas M. Blackman.



Black-footed albatross photographed by Lewis Wayne Walker.

A negligible number (one-half of one per cent) are from the built-up area which is everywhere several hundred yards from these vital air strips. Only one marked bird from Eastern Island, so far, has been recorded over the Sand Island runways.

All sorts of scaring devices and deterrents, such as sound and smoke, had previously proved ineffectual in moving these birds from their chosen lifelong nesting sites. Egg destruction even intensified the problem by causing more non-nesting birds to be in the air. One of the methods frequently suggested was to transport the birds away from Midway to such a distance that they would not return. To test the feasibility of this approach, 18 Laysan albatrosses were taken from their nests on Midway and shipped on naval planes to distant points around the Pacific Ocean. Fourteen of these returned from distances ranging from 1,315 miles to 4,120 miles—birds that were released in places ranging from Whidby Island, Washington, to Langley Point in the Philippines. An average of about 200 miles a day was traveled by the birds which returned. Enough said about the chances of solving the problem by moving the birds away from Midway in the hope they would take up their nesting elsewhere!

Early in the study of Sand Island, it was thought that satisfactory control of this bird hazard to aircraft could probably never be achieved without eliminating at least a part of the albatross population. Therefore, after the color-marking experiments had shown that the occurrence of nesting birds over the runways was in proportion to the proximity of their nest sites to the runways, an experimental population reduction program was carried out. Sixty-two hundred albatrosses were killed in a centrally-located, triangular area bounded by runways. However, subsequent observations showed that the elimination of these birds had no noticeable effect on the frequency of birds soaring over runways adjacent to the depopulated area. It was concluded at this point that any killing program to achieve reasonable reduction of birds over runways would probably require the elimination of a *large* part of the Sand Island Laysan albatross population, a very distasteful prospect. Furthermore it is obvious that the program must be carried on year after year to eliminate the new birds which would certainly invade the depopulated area. It was concluded that these measures should be used only as a last resort.

The next step was to study the habits of the birds during the time they were in the air over the runways. It was noted that concentrations of soaring birds were definitely associated with *unevenness of the terrain*. Sand dunes and old revetments apparently deflect the constantly blowing winds upward and thus produce conditions favorable to

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During World War II, the enormous population of sooty terns on Ascension Island in the South Atlantic, off the west coast of Africa, caused considerable difficulty to U.S. Army aircraft landing there and taking off. Dr. James P. Chapin, then Associate Curator of Birds, American Museum of Natural History, New York City, was sent to Ascension Island to study the problem. Dr. Chapin discovered that if the eggs of the nesting terns were destroyed in the areas immediately adjacent to the aircraft runway, the terns moved away.

In an article *"Wideawake Fair Invaded" (Natural History Magazine,* September 1946), Dr. Chapin wrote: "No sooner had I related the success of my simple experience than the decision I was so reluctant to make was snatched from my control. . . . Major Brown took a detail of three soldiers, each with a long stick, and the breaking began. Every egg in the offending area must be destroyed, but no adult tern must be struck. We felt sure they would leave within a few days. . . . Gradually the numbers (of sooty terns) flying over the devastated area dwindled. I visited several other thriving colonies . . . at various points well away from the runway and made sure they were unmolested.

. . . Eleven days after the first wholesale destruction of eggs, I noticed few birds flying over the abandoned area, even after sundown, and none alighting."—THE EDITOR

BIRD FINDING WITH *Sewall Pettingill*

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WHERE TO GO
WHEN TO GO
WHAT TO SEE

FREQUENTLY I am asked: How many of the bird-finding areas described in your guides* have you visited? Most of my questioners seem taken aback, sometimes look at me aghast, when I give my stock answer: about five per cent of the places. No doubt a few of the questioners thereafter rate me as 95 per cent faker and consider my books just so much rubbish. How can anyone, I almost hear them exclaim, write with authority about places that he has not even seen! What these people fail to realize is that, in a real sense, I am more an editor of the books than the author. All the area write-ups are based on field notes, census reports, annotated lists, route directions, and other data supplied by some 600 authorities. I simply arranged or otherwise prepared the material for publication. About the only part of the writing that is essentially mine is the style.

When I take long trips my guides go with me on the chance that I may be able to explore at least a few more of the areas that have been described. And I can tell you with complete candor that when I follow directions to a spot new to me I practically hold my breath for fear that something will turn out to be wrong. Perhaps the highway will be renumbered or replaced by a freeway; perhaps the marsh will be drained, the field broken up into houselots, the beach closed to the public, the forest destroyed by lumbering operations; perhaps the birds that should be there will not be there at all. Unlike anyone else following the directions, I feel responsible for their accuracy. If the write-up proves to be correct, I am elated and probably enjoy the visit more than most people, partly through a sense of relief. But if I discover a discrepancy, I experience emotions ranging anywhere from disappointment (in case a route number has been changed) to disgust (I was given erroneous information). There is no changing what I have published. Under my name remains the inaccuracy, to mislead bird finders for years to come.

MILES CITY, MONTANA

Late in the summer of 1957 my wife, my younger daughter, and I followed my western guide to several areas in Montana and Wyoming that I had never visited. It was not a good season for bird finding, but we were able to check up on directions and descriptions and to form our own impressions. You will be interested in some of our experiences at three different places.

The Federal Fish Hatchery in Miles City, eastern Montana, is notable for the water birds, waterfowl, and shorebirds that are attracted by the rearing ponds and grassy sloughs. Arriving in town during a rainstorm we continued west on US Route 10 to find the hatchery, roughly two miles away. But alas, the directions in the guide were obsolete, for Route 10 passed over a new roadbed. We spent nearly an hour making inquiries and working our way over slippery, puddle-dotted side roads to the hatchery. Disappointing experience? Indeed it was, but it is to be expected in these days of accelerated highway construction. For those of you who may be passing through Miles City, here are the revised directions to the hatchery: take US Route 10 west and south from Miles City; about two miles out of town, turn right on a road that passes under an arch marked "U.S. Range Livestock Experiment Station" and continue for 1.3 miles north and west; then turn right and follow the only road 0.7 miles to a railroad track, but do not cross it; instead, turn left (west) and go to a group of white buildings which belong to the hatchery. Leave the car there, etc.

RED ROCK LAKES

For several reasons we made a special effort to visit the Red Rock Lakes Migratory Waterfowl Refuge in southwestern Montana. It is re-

* "A Guide to Bird Finding East of the Mississippi" and "A Guide to Bird Finding West of the Mississippi," Oxford University Press, New York City, N. Y.

puted to be among the most scenic of the federal wildlife preserves. It was established to protect the trumpeter swan and subsequently played a considerable role in saving the species from extinction. Its manager is Winston E. Banko, a very capable ornithologist. Charged with making an extensive investigation of the trumpeter swan, he has rapidly become the leading authority on this largest of all North American waterfowl.

No description has yet exaggerated the natural beauty and charm of Red Rock Lakes. High in the Centennial Valley, rimmed by mountains, the three lakes glisten like mirrors and not infrequently reflect the higher peaks. Everywhere is color to please the eye—the fresh green of the marshes and meadows that flank the lakes, the yellow of the adjacent, arid slopes, and the grays, browns, and reds of the mountains. Above is a canopy of deep blue that one expects at a mile-high elevation.

The lakes are ideal habitat for swans. Not only are the bodies of water isolated—a fact which becomes readily apparent when you drive to the refuge from either Monida or West Yellowstone, the two take-off points—but they are also shallow and are sealed off by vast marshes. As for seeing trumpeters, you have no difficulty. Just drive along the refuge road that passes close to the south shore of, and overlooks, Upper Red Rock Lake where several of the big white birds are almost invariably in view. A high-powered binocular, or a telescope, will be useful as you cannot expect to get close to the birds at any time, since they tend to be wary.

I doubt that there is anyone who knows more about trumpeter swans than Win Banko. For a number of years he and his assistants have been tracing the movements of the birds in all seasons. He has personally made detailed studies of breeding activities. He knows about the territorial requirements of nesting pairs and how long it takes cygnets to reach maturity. The great wealth of knowledge which he has acquired is already set down in manuscript form and will be published before very long.

One day Win took us on a climb by jeep to the summits of some of the Centennial peaks south of the refuge. No excursion like it have I had before (and I hope never again!), for I was elected to ride in the back of the vehicle in a springless, uncushioned, wooden chair. Up a mining road, past spruces and Douglas firs, we leaped. Half the time, it seemed to me, I was slamming down in the chair. Once above the timberline we purposely left the road to tackle the untouched (rougher) slopes. At this point I gave up the chair to stand in a crouching position, the better to absorb the shocks. Around ledges and an occasional spruce we careened, while I clutched desperately at anything immovable, actually fighting to stay in the mad little craft. Ultimately we reached one summit, then another and another. I will admit that the views of the refuge were rewarding. Despite our positions far above the lakes I could, through my 7x35 binocular, make out the trumpeters—now mere white specks. We looked down on numerous soaring buteos (chiefly red-tails, rough-legs, and Swainson's) and sometimes a Clark's nutcracker dashing across an open space.

Another day, with a good map obtained at refuge headquarters and Win's suggestions, we set out in our own car in quest of big game. Sure enough, in the meadows bordering Tom Creek we saw three moose leisurely feeding; and in the northwest part of the refuge we watched a large herd of pronghorn antelopes grazing. But what impressed us most were the numerous flocks of mountain bluebirds whose turquoise against the late-summer yellows and browns could hardly be more brilliant.

EDEN-FARSON REGION OF WYOMING

One of the places where one can be certain to observe strutting sage grouse is the Eden-Farson region north of Rock Springs in southwestern Wyoming. It was here that the late Robert L. Patterson conducted the studies on which his scholarly book, "The Sage Grouse in Wyoming" (Sage Books, Inc., Denver, 1952), was largely based. In my early correspondence with Dr. Patterson for details as to the exact location of the strutting grounds, he said that all I need put in the guide was a statement directing the bird finder to consult the Eden and Farson postmasters, both of whom were familiar with sage grouse and knew where they performed their courtship rituals. Though I wanted to give more specific directions, I accepted Dr. Patterson's advice.

Sage grouse had long since ceased strutting when we drove through Eden and Farson in early September; nevertheless I decided to call on the postmasters. Neither was on duty, but that was no problem. Their wives, who were substituting, provided what I wanted to know. Their answer to my initial inquiry was evidence that they were well informed about sage grouse, and were used to telling people where to observe the birds. They could direct me to the very spots where some birds had gathered at twilight earlier in the year. Dr. Patterson had been a friend of theirs and they were saddened by his tragic death. A fine series of photographs of displaying grouse were available for perusal in the Eden post office. I left Eden and Farson satisfied that no bird finder will have trouble locating sage grouse strutting grounds in either place.

THREE ARCH ROCKS, OREGON

While I am not sure just how many bird-finding areas in my guides Dudley and Vivian Ross have visited, I am confident that their percentage is far higher than mine. Now and then they send me notes on what they have found or did not find, corrections on route directions, and so on. I truly envy them in their trip during the nesting season to Three Arch Rocks National Wildlife Refuge just off the Oregon coast. They saw almost incredible numbers of common (California) murres, and smaller numbers of pigeon guillemots, tufted puffins, and double-crested, Brandt's, and pelagic cormorants. Fork-tailed and Leach's petrels were nesting there, and in all probability there were a few breeding sooty shearwaters. As Three Arch Rocks is not an easy place to reach, and good accommodations are scarce on the near-by mainland, the following information provided by the Rosses will be helpful.

The Rosses stayed at Kirk's Oceanside Cottages at Oceanside, which is 10 miles west of Tillamook. Accommodations are modest but entirely adequate; breakfast may be obtained in the immediate vicinity or at Tilla-

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ARE WARBLERS DECREASING?

By John V. Dennis

(PART III)

The Causes of Population Decreases

Ludlow Griscom, in analyzing this problem of population decrease, lists four main causes: (1) losses on migration due to storms, winds, and hurricanes, (2) losses from cold or severe weather on the winter range, (3) lumbering and other destruction on the breeding grounds, (4) drainage of marshland.*

For the warblers, the first two points are the most important. But since most of the warblers winter wholly within the tropics only a few species are exposed to the hazards of cold or severe weather on their wintering areas. Habitat changes under (3) and (4) would benefit some species and harm others, but would not be expected to cause sudden decreases. The main hazards to the warblers, as listed by Griscom, then seem to fall under (1)—natural calamities.

Natural calamities have been frequent and severe over the last three years. The violent hurricane season of 1954 probably accounted for the heaviest losses. Griscom, in speaking of losses from storms of various kinds and adverse winds, says that all such losses "pale into insignificance compared to those which must take place when August through October hurricanes rage across the Gulf of Mexico." The 1954 hurricane season, of course, is one long to be remembered for its violence and destruction. The following year the breeding-bird censuses for the eastern and central states, almost without exception, showed decreases in birdlife.** The highly migratory warblers, vireos, and flycatchers seem to have been the hardest hit.

The 1954 hurricane season seemed to provide the obvious explanation, but a contributing factor, it was felt, was a second natural calamity. A severe cold wave in the Southeast during the spring of 1955 caught many birds as they moved northward. Finally the third calamity, which we have already discussed, lack of food and freezing weather over much of the eastern and Great Lakes region during May of 1956, inflicted heavy losses just as many birds were reaching their breeding grounds.

Such a succession of calamities, it might be felt, would cause almost permanent damage to populations of some of the small birds. Griscom, however, considers natural disasters as only temporary setbacks and likely to affect only a portion of the population of any species. Or as he puts it: "Due to the wide range of most birds, losses and gains are erratically distributed, of irregular pattern, with many seeming paradoxes."

The Pattern of Population Decline

In this one statement we suddenly see our migration puzzle of 1956 in a clearer light. Drastic decreases were evident. But while the myrtle warbler, for example, was down 85 per cent on Nantucket it was doing well in Ontario and several other places. The decrease we noted for the palm warbler was balanced by increases for bay-breasted warbler, and so it went for species after species. *Calamities seemed to hit only a portion of any one species and losses and gains were distributed unequally.*

To be more or less permanently damaging to bird populations Griscom states: "Disasters require a combination of unfavorable factors, and some form of loss from human beings has to be one of them." His hopeful conclusion is that "most (of the) *successful* species recover from losses to *one* known cause in three to five years."

Griscom mentions the Wilson's snipe, tree swallow, phoebe, bluebird, and golden-crowned kinglet as examples of birds which have from time to time suffered heavily from one known cause, but which have quickly recovered. Severe weather on the wintering range in the South was the cause of heavy mortality in each instance. In other cases, where more than one factor was involved, certain species have not recovered. The yellow-throated vireo is an example given by Griscom. Formerly a common summer resident in New England, this vireo slowly declined with the increase of the English sparrow. It was still fairly common up to 1915, then a rapid decrease followed. By 1922, it was rare from New Jersey northward. The implication is that an additional misfortune hit the species at a time when it was under severe pressure from the aggressiveness of the English sparrow. Griscom does not suggest what this new misfortune was. We can guess that it was a migration disaster, increased use of poison sprays, or a combination of these and perhaps other factors. At any rate the yellow-throated vireo has never recovered.

Do Warblers Show a Cycle of Abundance and Rarity?

Many students have suggested that most animal populations are subject to periodic cycles of abundance and scarcity. Griscom puts little trust in the cyclic interpretation for birds. He admits that certain northern grouse and ptarmigan are probably subject to periodic cycles, but even such a standard example among birds of prey as the snowy owl, according to Griscom, does not meet the test of a regular cycle repeated at set intervals. Instead of coming south every four years, as is so often repeated, he finds that the snowy owl actually reaches Massachusetts *every winter* and that the largest invasions occur at irregular intervals, two to 17 years apart.

The warblers, possibly exempt from cyclic influences, have in their long and hazardous migration routes cause for the most violent kind of yearly fluctuations. But these fluctuations, even when they are drastically downward, do not appear to be serious or long-lasting, unless the causes are man-made. If our civilization imposes additional hazards,

*"Birds of Concord," Ludlow Griscom, 1949.
**_Audubon Field Notes_, Vol. 9(6): 408, 1955. See also *"Death in the Night,"* (*Audubon Magazine*, January-February 1956 issue) for a report on the large losses of small birds at ceilometer beams during the autumn migration of October 1954.—The Editor

and if these are damaging enough, then it is time to look out! This is not so obvious with warblers but is clearly evident where shooting and lumbering has caused the extermination of a species already in precarious balance. The ivory-billed woodpecker is an example.

Man-Made Causes of Losses to Birdlife

The menace is less easily recognized when it is the removal of land by the continuing expansion of the physical plant needed to house and provide for the human economy. Yet the vast acreage taken for roads and super-highways, airport runways, buildings of all kinds, drive-in theaters, parking lots, and the numerous other adjuncts of civilization means a more or less permanent loss to wildlife and adds nothing of value to bird habitats in its place. Expansion or progress as it is sometimes called, does not doom one species after another. If it did we might be aroused to fight for each acre before it was engulfed. Rather, I strongly suspect, these violent changes lower the reserve population each species has to fall back upon in time of natural disasters. Loss of habitat is, as yet, probably not a serious problem for the warblers, particularly those adjusted to life in the vast cut-over forest lands of the North.

But in addition to the outright removal of land from wildlife use, civilization imposes a series of hazards much akin to those birds already encounter on their migration routes. The blinding lights of the lighthouse or the ceilometer beam inflict casualties in much the same way as a sudden hailstorm or a cyclone. At times these losses are very great. Ceilometer beams used at airports to measure the height of overlying clouds took an estimated 100,000 lives of birds on a few consecutive nights in the fall of 1954.* The total loss from structural and mechanical hazards of all kinds each migrational season must be tremendous. Light beams, tall buildings, and bridges inflict the most spectacular losses, but the accumulated toll from plate-glass windows, automobiles, radio and television towers, power lines, and similar ob-

Photograph of black and white warbler by William J. Jahoda.

The white arrow in the aerial photograph below points to the Mothballs area on Nantucket Island, site of the author's bird-banding work. Photograph, courtesy of Nantucket Island Chamber of Commerce.

* See *"Death in the Night,"* by John K. Terres, *Audubon Magazine*, 58(1): 18-20. 1956.

stacles must be equally great. These hazards multiply as our population grows and becomes more industrialized.

How We Can Help to Overcome Man-Made Hazards

It remains to be seen if our highly migratory birds, particularly the nocturnal fliers, which include the warblers, can stand this kind of strain indefinitely. We know that birds through their high reproductive capacity can make up severe losses, and also there are present-day trends that favor birdlife. One of the most hopeful aspects is the awakened awareness of people to birds, and to their needs. More and more is being done in establishing bird sanctuaries, wildlife plantings, feeding stations. No longer is there much unlawful shooting. But the warblers, as a group, do not share so much in the benefits provided by man. They are largely wilderness birds. Their survival may well depend to a larger degree upon the removal or making safe of some of the man-erected hazards along their migration routes. The next 20 years should provide an answer as to their ability to survive. But to have a satisfactory answer, we must pay more attention to the fluctuations in birdlife from season to season. Are these fluctuations largely a part of the natural interplay of weather and migration, losses on the winter range, success or failure during breeding season, or is there an implacable human factor at work?

We hope that our studies on Nantucket will help answer some of these questions. This is just a beginning, we feel, and a step toward the kind of bird observatory work that has been carried on so successfully in Europe for many years. The findings of the well-known European observatories (bird research stations at Heligoland, Ottenby in Sweden, and Fair Isle in the Shetland Islands make intriguing reading and offer an example of what can be done. In Great Britain and Ireland alone there are 17 bird observatories. Some are amateur stations manned only during the migrational seasons, others are permanent with paid personnel. Bird-banding and migrational studies loom large at these stations, but investigations are also made into other lines of natural history.

While we have been slow to follow the example of the Europeans we do have some excellent methods for following and reporting upon birds and their welfare. Strong support of our existing programs and incentive to carry out individual research studies should insure an adequate coverage.

HOW YOU CAN HELP

1. By reporting to your *Audubon Field Notes* editor significant changes in birdlife you have observed in your region. Submit reports for winter birdlife, spring migration, the breeding season, and fall migration.

2. By taking part in the annual Christmas census. (Not meant to be an accurate index on population trends, but a step in that direction, and a continent-wide demonstration of unity and cooperation among all those interested in birds and other wildlife.)

3. By making a breeding-bird census for the *Audubon Field Notes*. The Northeast has so far received the most attention. Many types of habitat as "the tundra, the boreal forest, the northern prairie regions, the southwestern sage and desert, and the scrub subclimax remain untouched."* But breeding-bird censuses from any type of habitat and over a period of years will help fill in on trends in birdlife.

4. By participating in the spring and fall migration studies on dates of arrival and peak abundance of a selected number of species. This study, now on a continent-wide basis, aims primarily at ascertaining the role of weather in the migration of birds. For details write to Mr. James H. Zimmerman, 2114 Van Hise Avenue, Madison, Wisconsin.

5. By making a study of your own on some phase of bird migration or the fluctuations of bird populations. Very often a significant contribution can be made by counting the birds over a given route at regular intervals. Carry your study through and see that it appears in one of the journals devoted to ornithology.

6. By participating in national and local bird club and conservation activities. Make yours an active membership and, with letters, talks, and petitions, support the concerted efforts to save threatened areas and the efforts to introduce and pass wise legislation. —THE END

* See *Audubon Field Notes*, Vol. 10(6): 416. 1956.

BIRDING WITH SEWALL PETTINGILL

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mook. From the front of the cottages Three Arch Rocks can be viewed through a permanently-installed telescope. Mr. W. L. Kirk, owner of the cottages, is much interested in birds and willing to make a boat reservation at Garibaldi (on US Route 101, 11 miles north of Tillamook) for a trip to the rocks. Mr. Kirk knows the boats and their skippers well.

Trips may be arranged for a half or a full day. The Rosses found a half day sufficient for good bird observations. They made their trip in a fishing boat, *The Triad*, owned and skippered by Don Olson.

SOURCES OF INFORMATION ON BIRD FINDING

The Linnaean News-Letter,* beginning with the October number, 1956 (vol. 10, no. 5), has been running a fine series of articles on bird-finding areas in and around New York City. Each article is accompanied by a specially-drawn, excellent map of the areas concerned. Miss Veronica E. Sexhauer is undertaking a compilation, county by county, of bird-finding opportunities in Florida. One chapter, on St. Lucie County, has been published in *The Florida Naturalist*** for July, 1957 (vol. 30, no. 3).

PROGRESS REPORT ON ARCTIC THREE-TOED WOODPECKERS

At last I have seen black-backed woodpeckers; furthermore, I have, thanks to a tip from Michigan friends, filmed a nesting pair. The particular geographical and ecological situation in which the birds were found is so extraordinary that it is only fair that my friends who made the discovery should make the first report.

I am delighted with the many letters telling me about places where the woodpeckers can be seen. You may be sure that one of my columns in the near future will present a digest of the more important information received. —THE END

* Published by the Linnaean Society of New York City, American Museum of Natural History, 79th and Central Park West, New York 24, N. Y. Subscription is $2.00 a year.

** Published by the Florida Audubon Society, 903 Orange Ave., Winter Park, Florida. Subscription is $3.00 a year.

ESTABLISHMENT OF ARCTIC BIRD SANCTUARY

Establishment of the first bird sanctuary in Canada's Far North was announced in the fall of 1957 by Resources Minister Douglas S. Harkness.

"Establishment of the Dewey Soper Bird Sanctuary on Baffin Island, in the Northwest Territories, is an important development in the protection of migratory birds in Canada," the minister said, according to a Canadian government news release. The name of the Dewey Soper Bird Sanctuary was selected to honor the biologist, Dewey Soper, who discovered the breeding grounds of the blue goose in 1927.

The sanctuary is an area of 3,150 square miles which serves to protect the heart of the important blue, and snow, goose breeding grounds. The American brant and Hutchin's goose also breed in the same area. The sanctuary, on the southwest side of Baffin Island between Bowman Bay and the Koukdjuak River, is rated as the most important summer goose colony in the world. It is closely related to, and includes, the small 500-square mile Bowman Bay Game Preserve.

Within the newly established sanctuary, hunting is prohibited. Exploration and development of mineral resources, however, may be allowed under permit from the Canadian Wildlife Service of the Department of Northern Affairs and National Resources. Mineral developments may also be allowed provided that adequate steps are taken to prevent undue disturbance of the migratory birds in the area.

Dewey Soper's explorations on Baffin Island began in 1922 and continued until 1929, culminating in the discovery of the nesting grounds of the blue goose. Traveling often under most arduous conditions in winter and summer, Mr. Soper explored new territory, adding greatly to the knowledge of the fauna of Baffin Island.

Mr. Soper, who was a biologist with the Canadian Wildlife Service before his retirement from the federal government, now lives in Edmonton. He has published many reports on his work and was made a Fellow of the American Ornithologists Union in recognition of his contributions to North American ornithology.

The sanctuary will be supervised by the Canadian Wildlife Service, the agency responsible for its administration under the Migratory Birds Convention Act. There are approximately 100 bird sanctuaries in Canada at the present time.—*From a news release of the Canadian Department of Northern Affairs and National Resources.*

CONFLICT OF BIRDS

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soaring. Under certain wind conditions the number of birds over the area with the highest trees and dunes is 165 times as great as over level areas. *This discovery suggested a method whereby effective control of the hazard to aircraft might be achieved without destruction of birdlife.* Leveling all land for several hundred feet on both sides of the runways might reduce to negligible the incidence of soaring birds in those areas. At present this method seems to be the most promising as the final solution in eliminating the aerial hazard of albatrosses to aircraft.

At this point it might be of interest to examine a little more closely the nature of the hazard to aircraft presented by albatrosses at Midway. All recorded collisions between airplanes and birds have occurred during *daylight* hours; these birds are rarely in flight over land at night.

During the period from April 8 to May 31, 1957, 29 albatrosses were struck or about five per cent of aircraft operations resulted in strikes. The black-footed albatross was involved in only about one per cent of the strikes. Ever since Midway has been used as an airbase, there have been no records of human lives being lost and of aircraft having crashed because of planes striking birds. Damage from bird strikes to seven planes was reported between November 20, 1956, and May 31, 1957. This damage was incurred by four-tenths of one per cent of planes which landed or took off. Despite a seemingly rather low incidence of damaging strikes, any repairs to aircraft are costly and the prospect of the loss of even one plane loaded with passengers is alarming.

The second bird hazard to aircraft studied was that presented by the sooty terns which nest in compact groups of many thousands and fly about in clouds over the runways at certain times. These birds are expected to be much more of a hazard when jet aircraft are used. At present no jets operate through Midway, but it is inevitable that they will. It is believed that these small birds will be sucked into the air intakes of jet planes and will disable the motors.

When the sooty terns began arriving at Midway in the spring of 1957 everything we could think of was tried to discourage them from landing and establishing themselves on their traditional nesting area. Harassment experiments were conducted by using burning oil smoke, 12-gauge shotgun fire, and aircraft float lights, to keep the birds off the ground when they were first arriving to start nesting activities. It was found possible, by constant harassment around the clock, to keep the birds off the ground sufficiently to prevent them from making nests on ancestral sites. Yet these efforts were unsuccessful in driving them from the island, and did not prevent them from moving to other parts of the island to nest. In view of the vast number of sooty terns which are attached to Sand Island (150,000 in three distinct colonies) and the considerable amount of manpower and material expended with unsuccessful results, it was decided that harassment methods of this sort were impracticable.

Methods have been explored for making the surface of the ground unsuitable for nesting, with the purpose of forcing the birds to nest elsewhere. Wire netting raised slightly above the ground and hardtopping of the surface were both effective, but the difficulty of maintaining the wire netting and the expense of hard-topping are deterring factors. The present tern colonies occupy 420,000 square feet of Sand Island. To make these areas unsuitable for their nesting would probably result merely in shifting the colonies to other parts of the island. At present, everything considered, we are faced with the probability that some sort of a population reduction program will be necessary for sooty terns, which are, fortunately, among the

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Attracting Birds

A Squirrel-proof Bird Feeder

Illustrations by Fred D. Tracy

We have finally solved the wild bird feeding problem to baffle the many squirrels that we also have. We have had several kinds of feeders and this one really works. It is a constant source of pleasure to us as it stands about 10 feet from a living room window where we sit a great deal. Some squirrels can climb the pole but none can circumvent the zinc skirt.

Material and directions for Squirrel-proof feeder

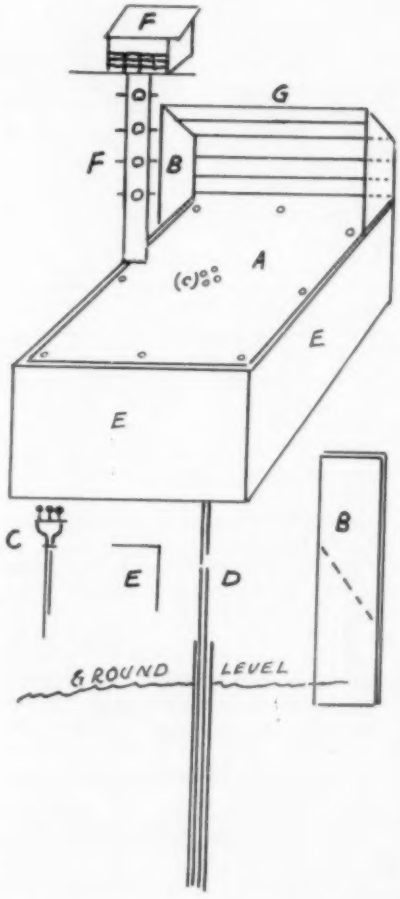
A–One piece ½" plywood 2' by 3'. Bore ½" diameter holes around margin for drainage and 1" hole as shown for suet holder. Finish the front and side edges of table with a ½" round molding or lattice to keep seed from blowing off.

B–One piece ½" pine 6" by 24" and 8 feet of pine lattice. Cut the 6" piece as shown at B and fasten to A with long finishing nails or small brackets. Fasten strips of lattice across the back and at front of roof. Put small strips inside to hold glass which will slide in from front.

C–Floor flange bored for three or four stove bolts with nuts and washers and threaded to hold ½" pipe. Bolt flange to center of A.

D–One piece of 1" diameter pipe 6' long and one piece of 1½" diameter pipe 2 feet long for a sleeve to receive the 1" pipe. Have one end of 1" piece threaded. Drive the 1½" piece into the ground to receive the 1" pipe. Screw the 1" pipe to flange and set up feeder.

E–Two pieces of zinc sheeting 1 foot high by 3' –0½ in. long, and two pieces 2 feet long. Bend one end of each to form ½" right angle. Punch small holes along upper edge and nail around the table. Paint to suit, including zinc and pipe.



F–One suet cup holder and one suet cake holder. Fasten together and whittle end of suet cup holder to fit hole on table.

G–One piece 8" by 24" glass. When

Turn to page 38

Treat them once or twice to a free meal, and they'll become daily visitors . . . bringing with them all kinds of entertainment and happiness for you.

But, remember, birds appreciate a variety of wholesome seeds. Buy Kellogg's Outdoor Seed Mixtures for a truly balanced bird diet . . . one that's relished by all outdoor birds.

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paint is dry, slip in glass to form roof and put up the suet feeder.

Built as directed, a squirrel cannot negotiate the journey from the ground to the table but in selecting the location for the feeder be sure that they cannot jump from a tree or the house and land on the table.

FRED D. TRACY
Fairfield, Connecticut

FLAMINGO NEWS FROM AROUND THE WORLD—*Continued from page 13*

that the terrifying whine of the jet planes, which has so seriously disturbed the life-cycle of the American flamingo in the islands of the Caribbean, will ever invade the vast and frigid silences of the remote Andean domain of their South American cousins."

Recent reports indicate that ceilings established for aircraft over flamingo colonies in the Bahamas are now generally observed. However, the 1957 nesting season was a failure throughout the West Indies, apparently from natural causes in every case. At Inagua a lack of even the small amount of rainfall normally expected must have had an unfavorable effect on the food supply. At any rate the flamingos there did not nest, the first failure of this kind in some years. From the information at hand there is every reason to believe that conditions will improve by next spring and that a record crop of young birds will result. On the coast of Yucatan, our good friends Joaquin and Roger Roche report that the first nesting was destroyed during the egg stage by high tides brought about by a tropical storm. At midday on June 11, all of the eggs floated away. The birds gathered again at a new site but, though a solicitous watch was kept, they did not lay a second time. At Bonaire, in the Netherlands Antilles, the nesting pond has gone dry two years in succession, resulting in a lack of food supplies and the loss of many of the young. The local government is much concerned and has now requested the Netherlands Foundation for Research to set up a special study of the problem. We hope that such an investigation will be possible.

A more encouraging piece of news comes to us from Andros Island in the Bahamas, where Arthur Vernay and E. W. Forsyth observed several hundred flamingos from an airplane during a survey they conducted this past spring. Mr. Vernay is the president and Mr. Forsyth a former president of the Society for the Protection of the Flamingo in the Bahamas. On a recent visit to Nassau, I discussed flamingo matters with the present Governor, Sir Raynor Arthur, and found him greatly interested in the future of the protection program. If flocks continue to

show up on Andros there seems to be a good chance that funds can be found for the purpose of employing additional flamingo wardens, a precaution that will be essential if a successful nesting is to be assured there. A successful resumption of nesting on Andros, where the historic and once famous sites have been deserted for more than a decade, will be the greatest achievement in flamingo protection in the Bahamas in the half century of its existence. We trust that the efforts of the Flamingo Society will receive the increased support they so fully deserve. The flamingo is the national bird of the Bahamas.

From farther afield, a recent letter from Luc Hoffmann, of the Biological Station in the Camargue of southern France, reports that after two poor seasons they have now had a good one. This, of course, refers to the colony of greater flamingos there, the only active nesting group that remains in Europe. The poor results of recent years were due largely to an inadequate policy regarding visitors and photographers. Apparently this has now been strengthened, to the benefit of the birds. There are still other troublesome influences, however, and, as M. Hoffmann writes, "we have to fight against climatic conditions and airplanes." We commend him on the choice of the word "fight" and wish him and his colleagues every success.

In East Africa, the outstanding champion of the flamingos is Leslie Brown, who has kept in close touch with the fortunes of both the greater flamingo (*Phoenicopterus antiquorum*) and the more numerous native bird, the lesser flamingo (*Phoeniconaias minor*). Mr. Brown has been assembling a considerable amount of detailed information regarding the lives of these birds, and we are looking forward to an extensive paper on the subject which should appear, as he has written us, "in due course." Meanwhile, our own Audubon representatives, Roger Tory Peterson and Bayard Read have been in East Africa and will be giving us their enthusiastic eyewitness descriptions of the flamingos. As Leslie Brown wrote me, "I think you will find them pretty full of flamingos on their return to the States." I do not doubt it. The last card I had from Mr. Peterson was clear proof that the magic of Africa had captured him completely; his greeting was in the Swahili tongue!

There is a final report from India, where our good friend Salim Ali of the Bombay Natural History Society has long been the leading authority on the great flamingo colonies in the Rann of Kutch. There had been some concern that a railway embankment built recently across a section of the Rann had been the chief cause of nesting failures during two or three seasons prior to

Turn to next page

1956. The situation was investigated by Mr. Ali on behalf of the Indian Section of the International Committee for Bird Preservation. He found that when the monsoon rains resumed at a normal rate the flamingos nested in their usual abundance, in spite of the railway embankment. Excellent results were obtained in both 1956 and 1957. Normal rainfall is still an outstanding welfare factor so far as flamingos are concerned.

Salim Ali's dedication to the flamingos of the Rann is well known. It is a most difficult place to reach and after his most recent trip, in April 1957, having endured many rough miles in jeeps and on the backs of camels, he had to go to a hospital for repairs. Happily his recovery has been complete and in his last letter he has written that he is now "ready for the next assault!" These flamingo enthusiasts are a tough lot and difficult to discourage. Because of them and their devotion, the flamingos of the world will have a good chance of survival.—THE END

SOME PECULIAR PYGMY INSECTS—*Continued from page 19*

tral and South America, although many of our North American species are quite grotesque as well. Truly, Step's term, "nightmare insects," seems to aptly describe this group.

Although they are commonly called treehoppers, quite as many species inhabit the grasses and weeds as live among the trees and shrubs. Furthermore, many of those which are found as adults in the trees, spend their pre-adult, or nymphal state, among the succulent weeds. These insects, like their cercopid relatives, subsist upon plant juices.

One species of small treehopper, which I find among the grasses and weeds, is scarcely a fifth-of-an-inch in length, exclusive of its forward-protruding "horn." This insect has no common name, being known only by its scientific designation, *Campylenchia latipes,* which, as printed here, is several times longer than the insect itself. Nymphs of this species not only have a horn which juts forward at a jaunty angle, but also a row of tiny notches down their backs.

While examining some nettle plants, one day, I discovered a minute hump-backed insect. This proved to be another species of treehopper which has been given no common name. Since the day when I first found this insect "brownie," I have come to think of it as the nettle treehopper, for, though I have searched with great diligence for it among many types of weeds and grassses, I have never found one living on any other plant. Scientists call this insectean hump-back, *Entylia bactriana.*

One day last summer, while resting along a roadside in a near-by arboretum, I amused myself by conducting a census of the little hump-backed treehoppers, which were living in a clump of nettle plants. I counted more than 80 of them, in the one small patch of weeds, before I gave up the game to observe something more interesting. While counting the insects, I had noticed that many of the nettle leaves had brownish streaks along the underside of the mid-vein which caused the leaves to bend back as though broken. On examining these brownish streaks closely through a powerful magnifying glass, I was able to discern a series of minute specks embedded in the veins of the fractured leaves. While speculating as to what the specks might be, my gaze was attracted to one of the hump-backed treehoppers as it moved slowly along the mid-vein of one of the leaves. I bent over the insect, watching every move it made. Then, suddenly, the secret was out! I had discovered the cause of the brown streaks and the identity of the tiny specks embedded within the tissues. The streaks were tiny scores caused by the treehopper's ovipositor, or egg-laying apparatus, as she deposited her minute seeds of life (the specks) within the tissues of the mid-vein!

Hastily, I set up my camera and took a few photographs. I was excited, for this was the first time I had ever caught one of these weird pygmy insects in the egg-laying act. In fact, it was the first time I had ever caught any treehopper in the act of laying her eggs.

Some who read these words may wonder why I became excited simply because, for the first time, I had observed a rather insignificant little insect as she laid her eggs. Well, some men become excited when they shoot their first duck, or moose, or lion, or elephant; some when they are the first to climb some lofty mountain, or swim a channel, or fly at a speed greater than sound—and so on. I don't aspire to such vigorous pursuits. Just as some men are awed by great things, so am I, by the minute. Some men travel to remote corners of the world seeking thrills and excitement. I find my thrills and excitement close to home, as an explorer of the little realms. And I think I have the advantage, for I can sit by any roadside, or weed-patch, or even six blades of grass and make thrilling discoveries. I guess it's all a matter of viewpoint. My horizons are close at hand; my thrills scaled down.

Not all treehoppers lay their eggs in the mid-vein of leaves or in grass stems. Female buffalo treehoppers, for example, lay their eggs in parallel, crescent-shaped punctures in the twigs and branches of such trees as elm, hawthorn, and apple, often causing considerable damage by weakening these members. The eggs hatch during the following spring and the nymphs start to feed on the juices of clover or of other plants. After the young buffalo treehoppers have molted several times, they gain their wings and become full-fledged adult insects. As adults they continue to feed on juicy weeds and grasses, but as fall approaches they migrate to trees and shrubs, where they breed and lay the eggs which will carry the species through the winter. In spring the cycle is repeated.

During the winter, when the green grass-jungles are gone and no tiny beaks or jaws are at work, I often look out over the slow-breathing, snow-blanketed landscape and miss the tiny, peculiar creatures which, summer after summer for many years, have posed before my cameras and have brought meaning to my "playing hours." And, as I look out over the cold world, I am cheered by the knowledge that somewhere amid the frost-seared stems and ice-covered twigs are the minute, dormant seeds of life—eggs of a host of peculiar pygmies—which will give rise, once the snow has gone, to a new group of tiny actors to pose and posture before my lenses.—THE END.

A BLACK-TAILED DEER COMES OF AGE

Continued from page 15

the time he was 14 or 15 months old, he had only to stop when the dogs were chasing him, and they would turn and skulk homeward. The dogs no longer wanted to get near his hooves or within reach of his formidable spike horns which had been forming since his eleventh month. At that time, when Man's horns were mere nubbins beneath the slowly-stretching skin, there began the only disturbing theme, to us, in Man's life. A five-year-old girl had a habit of striking her pet sheep with a switch. She may have tried this on Man, which might have earned Man's dislike, for she received hoof bruises from him on her cheek and back. A few days later while we were burning brush, the two mutually-jealous and antagonistic little creatures—girl and deer—approached each other again. Up went Man's front hooves, and he danced forward, like a boxer "sparring." Then, as she backed away, he dropped on all four feet again.

Except with the one child, who had given him a good reason for his distrust of her, Man never exhibited the "dangerous" characteristics which male deer are supposed to have. He never turned on us, even when the velvet was gone from his horns and he needed places to whet the new, itchy horn material. He often got one of my legs between his spikes, but always in a mild and courteous manner.

A gentle intelligent creature, even more sensitive than humans, he promised ever to be so, but we were not able to enjoy his companionship beyond his sixteenth month. The opening of hunting season, the fear of the small girl's mother, and Man's love of human companionship—all decided us in favor of taking him to Woodland Park Zoo in Seattle. There he now has constant human companionship—if not the exotic range of food and perfect freedom of movement which he enjoyed at our home. Man had adjusted to a world not his, and in his maturity, he needed the protection from it that only captivity could give him. Perhaps it was his human friends that had profited from his companionship, for his coming of age had been a wonderful, instructive experience for all of those who had known him.—THE END.

CONFLICT OF BIRDS

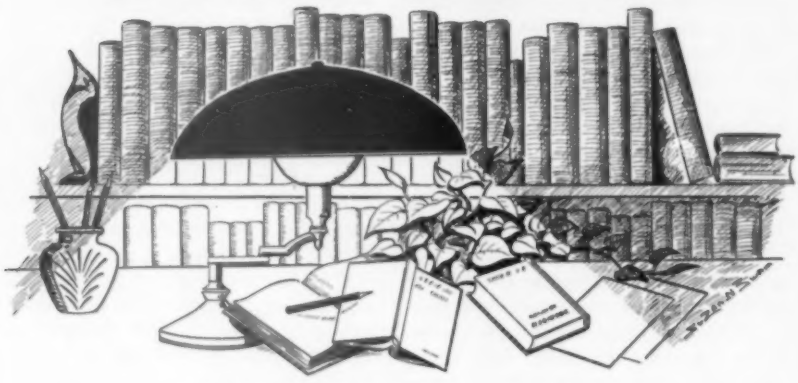
Continued from page 35

most abundant and widespread of sea birds. These terns are frequently struck by aircraft (an average of 1.2 birds per take-off or landing), but during the period of our observations none of these strikes resulted in damage to a plane. The fear is that with new types of aircraft, particularly with jets of the future, there may be trouble from sooty terns.

Our investigations at Midway are continuing. We expect to have additional personnel join Dale Rice there to delve further into the habits of the sea birds, and to seek ways and means of minimizing the conflict between birds and aircraft.

—THE END.

BOOK NOTES



By Amy Clampitt, *Librarian, Audubon House*

CHECK-LIST OF NORTH AMERICAN BIRDS

American Ornithologists' Union, Baltimore, Md., Fifth Edition, 1957. 9¼ *x* 6¼ *in.*, 691 *pp.* $8.00.

This long-awaited volume has finally appeared after innumerable delays. Since the previous (1931) edition, a tremendous amount of new material on the migration and distribution of birds, has been accumulated. This volume is nearly twice as thick as the Fourth Edition, with 165 more pages. There is the continued high standard of printing and format. As expected, many improvements over the 1931 edition are evident.

Each bird species is listed by its scientific and vernacular name, followed by a general outline of its range. If the species is polytypic (has two or more subspecies), each subspecies is listed by the scientific name only. The detailed range for each subspecies is given, with convenient subdivisions as to its breeding and wintering range and distribution in migration.

In this edition, the common, or vernacular, names of subspecies have been eliminated. The vast majority of field workers are primarily concerned with the species and therefore will not be overburdened with learning new common names for subspecies, or of remembering old ones. Except in a relatively few birds, subspecies are not identifiable in life anyway; indeed many subspecies are difficult to identify in the museum tray. Taxonomists, biologists, and research workers almost invariably use only the scientific names. Nevertheless, there are undoubtedly a number of amateur bird-watchers who will regret the omission of the vernacular names of subspecies.

Concerning taxonomy, the current treatment follows modern concepts, although the tendency, particularly with genera, and to a certain extent species, is decidedly conservative. The total number of forms in the new edition (1,683, despite the 1,686 noted in the Preface), exceeds the 1931 Check-List by 266. This is due largely to the recognition of many newly described subspecies and the addition of a number of extralimital vagrants that have been collected from time to time. Of particular significance is the detailed statement about the distribution of subspecies, which is a result of more intensive field work accomplished since 1931, and of a much greater number of trained observers active now than there were a quarter of a century ago.

The choice of vernacular names is to be commended on the whole, but the name now used for *Anas crecca*, common teal (formerly European teal), is particularly unfortunate and misleading. This species, instead of being common, as the name might suggest, is a rare vagrant in North America. While the ranges are usually stated quite accurately, there are a number of errors and omissions, usually minor, that chiefly concern the local distribution of certain birds.

These few shortcomings, however, do not detract from the splendid work presented in this volume. This book is a "must" and should be in the library of every serious student, amateur and professional alike, for it is THE authority on the scientific names and distribution of North American birds, just as the previous edition was. The A.O.U. Committee is to be congratulated on a particularly fine publication. It will be of inestimable value for many years to come.—JOHN L. BULL

ANIMAL LEGENDS

By Maurice Burton, Coward-McCann, New York, 1957. 8⅜ x 5½ *in.*, 318 *pp. Illustrated.* $4.95.

This book is written to support a thesis so provocative that a certain kind of reader may find it downright annoy-

ing: namely, that skepticism can be just as unscientific as credulity. Himself a scientist, and evidently a painstaking as well as open-minded one, Dr. Burton has come across some very strange things in the field of animal behavior. He has been emboldened by two recent ornithological developments—the discovery that birds hibernate, and the curious phenomenon known as "anting"—to suggest that some popular legends concerning animals may contain more than a grain of truth. He persuasively conjectures that there may really be a Loch Ness Monster, a Great Sea Serpent, and an Abominable Snowman, among other and yet stranger things. By the time he has resuscitated the ancient legend of the Phoenix, going so far as to suggest that the "anting" phenomenon may possibly shed some light on its origin, one is ready to rub one's eyes in amazed disbelief: can such things be? Nevertheless, the author has seen what he has seen, and it is too fantastic to have been invented. The book as a whole, despite an occasional faulty sentence which suggests hasty writing or at any rate careless proofreading, is as deftly organized as a ballet, its interwoven themes recurring like the shady characters in a detective story. And whatever the truth behind it all may be, it has the salutary virtue of reminding us, in these days of dizzily advancing knowledge, of how much remains unknown.

THE BIRD WATCHER'S ANTHOLOGY

By Roger Tory Peterson, Harcourt, Brace, New York, 1957. 10¼ x 6¾ *in.,* 401 *pp. Illustrated.* $7.50.

That ornithology, of all things, should so abound in purple patches, one would never have guessed before this book came along. But Mr. Peterson knows where to find them; and not only is this anthology very much his own, but a more colorful sampling of prose on any subject would be hard to imagine. Most of the selections are brief, often no more than a page or two, and many of the best have never before appeared in book form. Among these are the fine essay by Charlton Ogburn, *"The Meaning of Birds,"* from the *Atlantic Naturalist;* the late Alan Devoe's wonderful, funny, *"The Birds I Used to See,"* and one of the rare writings of Fuertes, an exquisite and haunting account of *"Voices of Tropical Birds"*—the last two from, respectively, *Audubon Magazine* and its predecessor, *Bird-Lore.* Even more obscure, and equally worth discovering, is Edward Wilson's weird and poignant account of life among the penguins. Every reader is bound to have his own favorites, and to agree that the handsome dress given the volume by the editor and his publishers is in every way worthy of its contents.

THE WARBLERS OF AMERICA

Edited by Ludlow Griscom and Alexander Sprunt, Jr., Devin-Adair, New York, 1957. 10½ x 8¼ *in.,* 356 *pp. Illustrated in color by John Henry Dick. Indexed.* $15.00.

This eagerly, not to say impatiently, awaited book is said to have originated in an after-dinner conversation. And it is just such a conversation, delightfully enough, that the finished product turns out to resemble. Here is Alexander F. Skutch telling about the warblers on his farm in Costa Rica; here are Eugene Eisenmann and James Bond exchanging notes—taxonomic, distributional, and otherwise—on those still farther south; here, among many others, is W. W. H. Gunn, a neighbor to the north, who has listened to, made tape-recordings of, and transcribed, the songs of some 39 species of warblers on their nesting grounds in Canada. The advantage, but above all the fun, of such a compendium is the way comment is added to comment—those of Lawrence Walkinshaw on the black-throated blue warbler nesting in Michigan, for example, to those of Alexander Sprunt, Jr., on the same species as a migrant on the Dry Tortugas. And presiding over the entire symposium is Ludlow Griscom himself, who loves the warblers just as much but whose characteristically bracing and lucid remarks on classification, distribution, and field identification set the proper ornithological tone, even though this is by definition a popular book. Since it is that, of course, what one really wants to know about is the color plates. It is a pleasure to report that Mr. Dick's watercolors are lovely and that they have been superbly reproduced. Altogether, this is a book worth waiting for.

FLAT TOP RANCH: THE STORY OF A GRASSLAND VENTURE

Edited by B. W. Allred and J. C. Dykes, University of Oklahoma Press, Norman, Oklahoma, 1957. 8¾ x 5¾ *in.,* 232 *pp. Illustrated. Indexed.* $4.00.

The idea for this book originated with the late Louis Bromfield, who wrote of his first visit to Flat Top Ranch as follows: "The ranch, I discovered, was made up of about 17,000 acres. It was not in the richest part of Texas. It was in cedar country and the farms which went into its making had been in an abandoned or semi-abandoned condition when they were thrown together to make Flat Top. Its history was like that of much of the Southwest; within three or four generations it had nearly been farmed and grazed out of existence." How, in 20 years and in spite of drought, by skillful and far-sighted management its worn-out and eroded acres have been made not only productive

but highly profitable, is a fascinating story of conservation at work. A chapter on the wildlife of the ranch, by W. R. Van Dersal, will be of special interest to readers of *Audubon Magazine*.

BASIC ECOLOGY

By Ralph and Mildred Buchsbaum, Boxwood Press, Pittsburgh, Pa., 1957. 8⅞ x 5¾ *in.*, 192 *pp. Illustrated. Indexed.* $3.50.

For readers who want to find out what ecology is without attempting to read anything of textbook proportions, this compact little book should prove welcome. By its very nature the subject is not easily treated in a few paragraphs or even a few chapters; and the authors, writing with first-year college students in mind, frankly label this an experiment. The liberal use of photographs, tables and diagrams, and of illustrative examples in the text itself, added to the authors' sincere concern for meeting the non-specialist halfway, should go far to make the undertaking a success.

ZOOGEOGRAPHY: THE GEOGRAPHICAL DISTRIBUTION OF ANIMALS

By Philip J. Darlington, Jr., John Wiley and Sons, New York, 1957. 9¼ x 6 *in.*, 675 *pp. Illustrated. Indexed.* $15.00.

Dr. Darlington is a museum taxonomist who has schooled himself to write learnedly without falling back on scientific jargon. This, as everybody knows, is a considerable accomplishment, and as a result his book should be of value to many people who are not, and do not intend to be, zoogeographers. His chapter on birds, for example, contains one of the clearest summaries, not only of their world-wide distribution but of such related matters as the theory of migration, which this reviewer has seen. It also contains what would seem to be far and away the most usable summary of bird families throughout the world thus far available.

MAMMALS OF THE GREAT LAKES REGION

By William H. Burt, University of Michigan Press, Ann Arbor, 1957. 8¾ x 5½ *in.*, 248 *pp. Illustrated. Indexed.* $4.75.

This revision of the author's earlier work on the mammals of Michigan is intended mainly for students and working mammalogists. All the mammals now or recently found in the Great Lakes region are included; their appearance and habits are described in detail, with maps indicating their distribution throughout North America as well as in the area under consideration. An introductory chapter discusses such concepts as adaptation, territoriality, and population dynamics, and there are instructions for collecting and preparing specimens, a key to identification, a list of dental formulae, and a tabular summary of measurements and life history data, as well as a list of references. The illustrations, which are all in black and white, include several drawings by Richard P. Grossenheider, as well as sketches by the author and members of his staff at the University of Michigan.

BIRDS OF AUSTRALIA IN COLOUR

By Lyla Stevens, Whitcombe and Tombs, Melbourne, 1956. 10 x 7½ *in.*, 60 *pp. Illustrated by Anne Lissenden.* $3.75. *(Available through Albert Daub and Company, New York 10, N. Y.).*

SOME COMMON AUSTRALIAN BIRDS

By Alan and Shirley Bell, Oxford University Press, Melbourne, 1956. 7½ x 5 *in.*, 210 *pp. Illustrated. Indexed.* $4.60.

Anyone planning a visit to Australia, or simply wishing an introduction to the extraordinary birdlife of that continent, should welcome either of these new books. Both are attractively illustrated in color. Miss Stevens's is the more elementary, its main purpose being to awaken interest; 31 of the better-known and more striking species are shown. The Bells have arranged their compact little volume as a field guide, grouping the species in two sections—those measuring less than 10 inches and those measuring 10 inches or more. Scientific names, general range, clues to identification, and a fairly detailed description of appearance and habits have been given for just over a hundred of the commoner Australian birds.

SPRING IN WASHINGTON

By Louis J. Halle, Harper, New York, 1957. 8⅝ x 5¾ *in.*, 234 *pp. Illustrated.* $3.75.

This celebration of spring along the Potomac first appeared in 1947; and being the work of a "watcher out of doors" whose professed intention is "to sniff the wind and inform those within of eternity," not a word of it is out of date. For their good sense in issuing a Decennial Edition—with the original illustrations by Francis Lee Jaques, plus a foreword by Roger Tory Peterson and an epilogue by the author—Mr. Halle's publishers are to be thanked as well as congratulated. Few naturalists write with such urbane grace or a more exquisitely tuned sensibility; and when it comes to weather, he simply has no peer. Winds are his particular forte: "Tuesday at dawn, rolling black clouds cover the sky, a warm, wet wind with a touch of wildness in it is whipping up the river. . . ." Who has not known just such a wind, or can fail of astonished delight to meet it between the pages of a book? Anyone who missed

"Spring in Washington" 10 years ago is, in short, strongly advised to repair the omission.

ORCHIDS FOR EVERYBODY

By Lee Wickham, Robert M. McBride, New York, 1957. 10¼ *x* 7 *in.,* 63 *pp. Illustrated.* $5.00.

Mr. Wickham has had remarkable success in growing native orchids from seed. Here he tells how he hit upon his method and outlines it in detail. In spite of an exceedingly handsome color plate showing a hybrid developed by the author between a New England Arethusa and an oriental orchid, the volume is perhaps overpriced; however, any orchid enthusiast will no doubt wish to own it.

YOUR OWN BOOK OF NATURE AND GARDEN FUN

By Ernestine Sabrina Coffey and Dorothy Fitch Minton, Hearthside Press, New York, 1957. 8¼ *x* 5⅝ *in.,* 63 *pp. Illustrated.* $1.75. (*Leader's Guide to this volume,* 122 *pp. Indexed.* $2.75.)

Here are projects enough to keep the most restless youngster and his distracted mother happy. A terrarium, an outdoor native-plant garden, an indoor herb garden; how to make an avocado pit or a sweet potato sprout in the kitchen window; bird feeders, migration records, pomanders, parsley balls, maybaskets (they still hang them, it seems), plus penholders, pine-cone turkeys, and all manner of flower arrangements and Christmas decorations: they are all here, with those business-like lists of what one needs, that are half the fun. The Leader's Guide contains all this, with over a hundred pages more for club leaders, teachers, and parents. The section on planning conservation programs will, of course, be of particular interest to readers of *Audubon Magazine.*

JUNIOR BOOKS

LUNA, THE STORY OF A MOTH (6-10)

Written and illustrated by Robert M. McClung, William Morrow & Company, New York, 1957. 8½ *x* 6½ *in.,* 48 *pp.* $2.50.

Of Mr. McClung's life-cycle stories, this is undoubtedly the loveliest so far. The moth itself flies through its pages, here a ghostly gray, here resplendent in its crimson-tipped pale green; and the same lush and delectable colors appear in the plumage of a red-headed woodpecker, the flowers of columbines and lady's-slippers, even the speckled top of a mushroom and the back of a ladybug, set against the coolness of summer foliage. Many more creatures appear: a raccoon, a gray squirrel, a frog, and other moths and butterflies. As a naturalist, the author is as always sound and reliable; as an artist, in this book, he shows a delicacy and spontaneity which are quite new.

WHO LIVES IN THIS HOUSE?
A Story of Animal Families (6-10)

By Glenn O. Blough; pictures by Jeanne Bendick, Whittlesey House, 1957. 10¼ *x* 7½ *in.,* 48 *pp.* $2.50.

Possibly a new fashion is being set in natural-history books for the very young. A few months ago we had Jean George's "The Hole in the Tree"; and here is another, not only on the same pattern but also in the same vein. It may be a sign that people are becoming just a little less solemn about ecology, which is another way of saying that they know more about it. Anyway, here, as in Mrs. George's book, we no longer have The Robin, the type that neatly dispenses with the individual, but a particular robin, which has elected to settle on the window-sill of a second-floor room in an abandoned house. Now we are getting somewhere: there may be children whom the life history of even a particular robin still leaves cold, but what child could ever resist an abandoned house? Of course, as it turns out, there are also mud-daubers, orb-weavers, a beehive in the wall, and a family of skunks under the porch. Miss Bendick's crayon drawings are just as casual as life itself appears to be when viewed without ecology-colored glasses, or, in other words, through the eyes of a child.

THE BUTTERFLIES COME (5-9)

By Leo Politi, Scribner's, New York, 1957. 10 x 8 *in., unpaged. Illustrated.* $2.75.

To Pacific Grove, on the Monterey Peninsula in California, monarch butterflies come in great migratory flocks every fall. Here the phenomenon has been made the subject of a book. Its great charm lies in the pictures, whose deep tones and strong technique wonderfully evoke the feeling of being in an evergreen forest, and the astonishing sight of the thousands of orange and black butterflies.

PAGOO (10-15)

By Holling Clancy Holling, Houghton Mifflin, Boston, Mass., 1957. 11¼ x 8¾ *in.,* 87 *pp. Illustrated.* $3.75.

"Pagoo" is short for *Pagurus,* the scientific name for the hermit crab whose minutely documented life history this is. The text, a rollicking blend of folksiness and sophistication (" 'Nope,' said Old Instinct at his elbow, 'Don't you fear that Moray Eel. He looks horrible, but he's nearsighted, and doesn't bother Hermits . . .' "), is full of narrow escapes which made this reviewer think of "Pinocchio." As for the illustrations, the comparison which springs to mind is with Arthur Rackham. On page after page, jewel-colored tide-pool landscapes, rendered with perfect biological fidelity, have at the same time all the mystery and wonder of caverns and palaces in a fairy-tale.

FLY HIGH, FLY LOW (5-8)

By Don Freeman, Viking, New York, 1957. 11½ x 8¼ *in.,* 56 *pp. Illustrated.* $3.00.

Pigeons are a part of natural history, even city pigeons, and even pigeons which happen to nest, as the two in this story did, in the bottom half of a letter B in a sign on a hotel in San Francisco. A kind-hearted gentleman named Hi Lee comes into it, and so do the cable cars, fogs, and wonderful views of that romantic city. The whole thing, but above all the pictures, has been done with warmth and delight: and while children are frequently more open-minded on the subject than their elders, it is good to have so gay a reminder that pigeons, too, are there to be loved.

URGENT

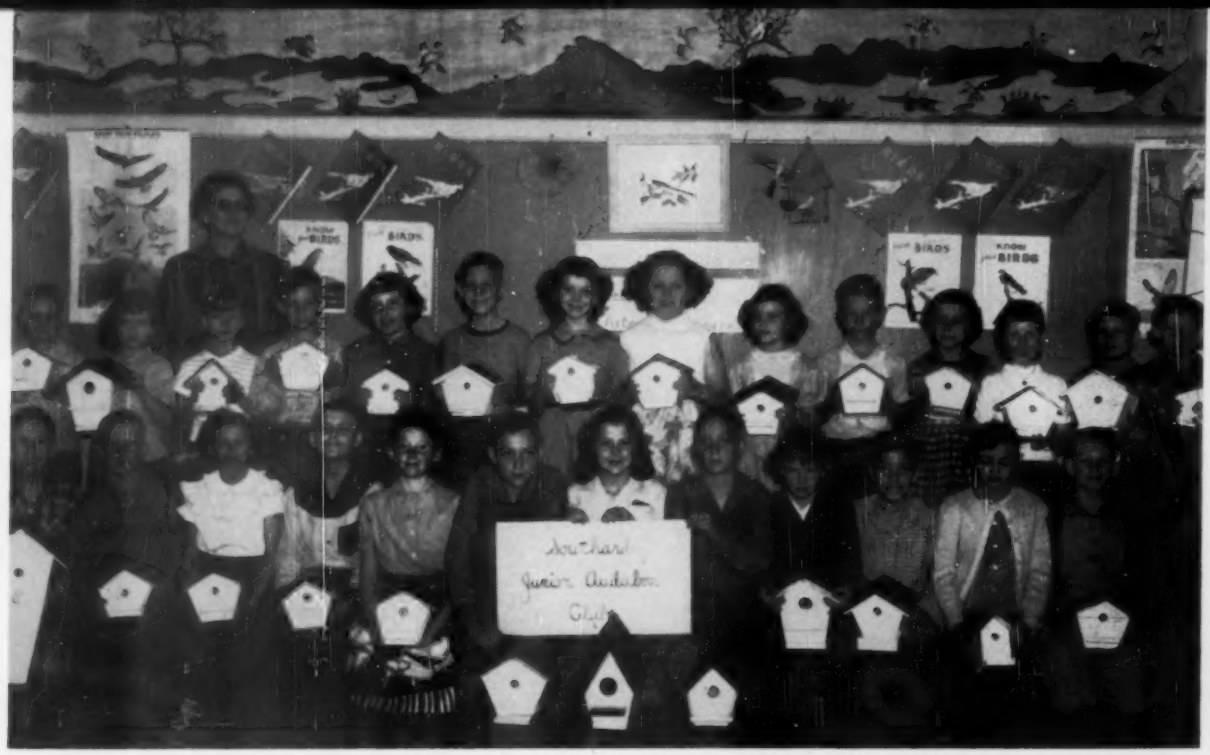
Urgently needed: the following back issues of *Bird-Lore* and *Audubon Magazine,* for the use of the Society's Research Director: v. 3 (1901); nos. 1, 2, 3, 4, 5, v. 4 (1902); no. 1, v. 13 (1911); no. 1, v. 23 (1931); no. 1, v. 39 (1937); nos. 5, 6, v. 40 (1938); nos. 1, 5, v. 42 (1940); nos. 1, 5; v. 46 (1944); no. 1.

Are there readers who can come to our rescue? If you have any of these issues which you would be willing to donate, please send them to the Library at Audubon House, 1130 Fifth Avenue, New York 28, N. Y.

WELL-PLANTED SEEDS BEAR HEALTHY FRUIT!

Mr. C. M. Goethe, well-known naturalist and philanthropist of Sacramento, California, sent us this little story:

"Recently I was at the Academy of Sciences, making notes on some rare California butterflies. I noticed a man with his two sons (who were also all making notes on butterflies) watching me closely. Finally he said, 'Mr. Goethe, you don't remember me, but I was in the Nature Study Class you used to conduct at the Sacramento Orphanage Farm in 1906. Butterflies are now my life hobby, too.' "



Photograph of Miss Winburn's Southard Audubon Junior Club by Dale F. Underwood.

Your CHILDREN

By Shirley Miller

SOMETIMES the miles of newsprint devoted each month to lurid accounts of juvenile delinquency in this country lead the unthoughtful reader to the false conclusion that we are raising a generation of monsters. We disagree with this conclusion and we're taking up the cudgels for the majority of our 33,000,000 children of elementary school age who are devoted to juvenile decency. Our particular pipeline in the National Audubon Society is to the boys and girls in Audubon Junior Clubs, and a recent questionnaire to club leaders (mainly elementary school teachers) points up the fact that a healthy crop of conservationists is coming along to voting age.

Let's take the report received from Mrs. Alice Winburn, fifth grade teacher in Southard, Oklahoma. For 15 years Mrs. Winburn has had this Audubon Junior Club program in her classes and this year the group is evenly divided between 13 girls and 13 boys (all present and accounted for in the accompanying picture). In sending us her questionnaire, Mrs. Winburn wrote:

"We always organize our club early each September in order to take advantage of seasonal bird study; also to create a lively interest in this work early in the school year. In our organizational procedure we set up a list of goals or objectives which we hope to complete during the year. Thus far this year we have completed the following:

"Studied 32 birds; made a study of tree farms and forestry in Oklahoma; made a study of John James Audubon's life, with special emphasis on the many sacrifices he and his family made to enable him to spend the time required in painting and studying the birds which make up the world-famous book, "Birds of America"; completed the study of our Audubon leaflets of a farm, a pond, a desert, and a mountain, constructing a mountain and placing animals and plants on it in their natural habitats; made sandbox projects, including a model bird and mammal sanctuary, a shelterbelt, and a demonstration of contour plowing; made two terrariums showing swamp and desert life; took three field trips and kept a record of what we heard and saw on these trips; kept records of fall and winter birds on a bird calendar; drew and colored a 30-foot wall mural, placing the birds in their natural habitats; each member made a bird feeder and fed winter birds at home, as well as keeping three school feeders well-stocked; each member built a birdhouse; decorated a Christmas tree for the birds; made bird mobiles; made bird plaques as Christmas presents for parents; helped a smaller school with materials for a bird club; carried on correspondence with our Audubon Pen Pals; viewed films and slides of many phases of nature, including birds, mammals, plants, and insects; provided nesting materials in convenient places; wrote stories about birds for English lessons; drew freehand pictures of birds and mammals; continued to keep a five-year record of migration dates of our state bird, the scissor-tailed flycatcher; continued to sponsor a community program each year to commemorate Oklahoma Bird Day; contributed $30 to help pay for color plates for the forthcoming "Book of Oklahoma Birds."

Mrs. Winburn added, "Our club program is of great value in every phase of our school work. In Geography and Social Studies we study flyways, where birds migrate, and their permanent homes. In Reading we use stories and poems about birds. I have been able to get some youngsters interested in reading, by using nature materials, that I couldn't reach in any other way. In Arithmetic we have sold food, provided by the parents, to raise funds for our club and each child took his turn in making change and counting this money."

In concluding her inspiring report, Mrs. Winburn told us that already four young men who had been in her Audubon Junior Club in past years have taken up conservation of natural resources as a life work, and others, currently in her club, are making plans for such a goal.

Mrs. Winburn didn't need to add that she has never been faced with the problem of juvenile delinquency.—THE END

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